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The Influence of Placement in a Co-Taught Inclusive Classroom on the Academic Achievement of General Education Students on the 2014 New York State ELA and Mathematics Assessments in Grades 6-8 in a Suburban New York School District

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Abstract

This study examined the influence of placement in a co-taught inclusive classroom on the academic achievement of general education students in Grades 6-8 in a suburban New York school district on the 2014 New York State ELA and Mathematics Assessments. Propensity score matching was utilized to select the sample to provide a balanced sampling technique. The final sample was comprised of 746 students in Grades 6-8 in a suburban New York upper middle class district during the 2013-14 school year. The variables that were included in this study were gender, socioeconomic status, attendance, ethnicity, past academic performance as measured by the 2013 New York State ELA and Mathematics Assessments, and placement in a co-taught inclusive classroom for ELA or Mathematics. Analyses were conducted using simultaneous and hierarchical multiple regression models, logistic regression, and factorial ANCOVA. Results of this study indicated that placement in a co-taught inclusive classroom had a statistically significant negative influence on the performance of Grades 6-8 general education students on both the 2014 New York State ELA Assessment and 2014 New York State Mathematics Assessment. Grades 6-8 general education students who were not placed in a co-taught inclusive classroom had a greater chance of being Proficient on both the 2014 New York State ELA Assessment and New York State Mathematics Assessment. Further research needs to be conducted on the co-taught inclusive classroom to determine why it had a negative influence on the academic achievement of general education students.

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To my wife Dev, thank you so much for your support. You are the best friend and partner in the world! Thank you for your endless encouragement and patience. It's hard to believe this journey started five years ago with the two of us enjoying life as newlyweds in our condo. Five years later we've added a house, a beautiful baby girl, and one more on the way! No matter what was going on, you always said, "Don't worry, get your work done." I would not have been able to do this without you.

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Dedication

This work is dedicated in loving memory to grandmother, Mary St. John. Grandma, you were always the first to ask how I was progressing in the program. I wish I could have completed this work while you were still here, but I know you are watching and celebrating with us.

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CHAPTER 1

INTRODUCTION

Background

Today's classroom for special education and general education students is vastly different from those of just a few years ago. Budget concerns from the recent economic downturn, as well as new federal and state mandates, have changed the way we educate our special education students. The result has been a move towards increased inclusion in our schools. In many places, the co-teaching model has evolved into a practical, economical solution for school districts (Nichols, Dowdy, & Nichols, 2010). With high-stakes testing now a part of the educational experience for all students, effectively implementing this model and examining its impact on students is of great importance (Murawski & Swanson, 2001).

Prior to federal mandates for special education, students with disabilities struggled for equal opportunity in education. Two major court cases, *Pennsylvania Association for Retarded Children (PARC) v. Commonwealth of Pennsylvania (1972)* and *Mills v. Board of Education of the District of Columbia (1972)*, provided turning points for students with disabilities and a foundation for the Individuals with Disabilities Education Act (IDEA), which remains the cornerstone of special education legislation (Weber, 2009). In both cases, parents of students who were denied access to public education sued their school districts, claiming the students should not be excluded. In each case, the court ruled in favor of the students, claiming that students be provided with a free public education (Touro Law Center, 2012). Specifically in *PARC*, the court went further in laying the groundwork for establishing the least restrictive

environment (LRE) (New York State Education Department, 2009). Both cases paved the way for the inclusion of students with disabilities into mainstream classrooms.

The Individuals with Disabilities Education Act (IDEA) began in 1975, with Public Law 94-142, the Education for All Handicapped Children Act of 1975. The initial law had four purposes: to ensure that students with disabilities received a public education with the necessary services, to protect the rights of such students, for the federal government to assist with the education of students with disabilities, and for the federal government to monitor the effectiveness of education for special education students (*Education for All Handicapped Children's Act of 1975*). The 1990 amendment required that students with disabilities have access to and be part of the general education curriculum. This led to an increase in inclusion classrooms in public schools (Yell, Drasgow, & Lowrey, 2005).

IDEA remains the most important and impactful legislation for students with disabilities. In terms of its importance to the growth of inclusion and co-teaching, IDEA mandated Least Restrictive Environment (LRE) placements for students with disabilities and the requirement of local schools to provide services and educate students with disabilities within their communities (National Center for Learning Disabilities, 2012).

The combination of two relatively recent pieces of legislation, No Child Left Behind (NCLB) and IDEA 2004 have moved more students with disabilities into the general education classroom for a variety of reasons (Katsiyannas & Shiner, 2006). The Bush administration passed NCLB in 2001. The law increased the role of the federal government in education and changed the way public schools operate. The primary goal was to improve student achievement by holding schools accountable for results. The main goals of NCLB included that ALL students

achieve high academic standards, be educated in safe and drug free schools conducive to learning, and graduate from high school (Yell, Drasgow, & Lowrey, 2005).

These goals have a profound effect on special education students. The use of "all" students is no coincidence. Congress believed that schools had to improve instruction for special education students. As a result, NCLB determined that special education students would be included in the testing given by the states each year. The results of students with disabilities on these tests would be part of the score used to determine the effectiveness of the school in meeting adequate yearly progress (AYP), determined by data from the assessments (Katsiyannas & Shiner, 2006). As a result, there is now increased emphasis on the achievement of students with disabilities on state assessments. Since most students with disabilities were already in the general education classrooms for most of the school day, schools began to look at these inclusion classrooms and determine how to improve instruction. The result was an increase in co-teaching classrooms in public schools (McDuffie, Scruggs, & Mastropieri, 2009).

IDEA 2004, also passed by the Bush administration, provided a framework to determine accountability for special education students. The primary goal of the framework was to determine if students with disabilities were receiving a free appropriate public education. In addition, the law aligned IDEA with NCLB.

The Obama administration's Race to the Top legislation has placed increased emphasis on high-stakes testing. Under the legislation, states create a system in which high-stakes test scores are used to evaluate teachers under an annual review plan. This led to further examination of the special education population and how they are being educated.

Statement of the Problem

Federal mandates have led to an increase of inclusion classrooms from grades K-12 throughout the country (Nichols et al., 2010). This, combined with more emphasis on high-stakes testing, including teacher evaluations now based on student performance as measured by high stakes assessments, has led to finding a model that best fits the needs of students and will increase academic achievement. Research exists on inclusion and its impact on the academic achievement of special education students (Scruggs & Mastropieri, 1996; Daniel & King, 1997; Brady, 2010). However, as the inclusion model has evolved, examining new models and their impact on all students is essential.

One result has been the movement towards the co-teaching model. The co-teaching model consists of two teachers, one regular education teacher and one special education teacher working together in one classroom as equals to educate students (Dieker & Murawski, 2003). However, the term co-teaching is also used in a more general sense in research to describe a classroom in which one or more teachers share the instructional responsibilities within the classroom (Park, 2014). To distinguish between the two, the model described by Dieker and Murawski will be referred to the "co-taught inclusive classroom" throughout the study. Current research shows that the co-taught inclusive classroom can have a positive impact on academic achievement for special education students (Murawski & Swanson, 2001; Murawski, 2006; Mastropieri, 2005).

However, little empirical research exists on the co-taught inclusive classroom and its impact on general education students (McDuffie et al., 2009). Continuing to educate our students in this environment without determining its effectiveness could be detrimental to both students and teachers. This study adds to the limited research on the co-taught inclusive

classroom's impact on general education students and will help determine if the co-taught inclusive classroom is a viable way of educating general education students moving forward. Furthermore, by looking at various subgroups within the general education population, the study will provide information as to which student groups may benefit more from the model.

Purpose of the Study

The purpose of this study was to examine the influence of the co-taught inclusive classroom on the academic achievement of general education students on the New York State Assessment for English Language Arts (ELA) and Mathematics in Grades 6-8 at a middle school in an upper middle socioeconomic school district located in a suburb of New York City. Additionally, the study examined the impact of other student mutable variables such as gender, socioeconomic status, class attendance, and ethnicity on the dependent variable, which was defined as student achievement on the New York State Assessment in ELA and mathematics in Grades 6-8.

In a similar study, Robinson (2012) examined the influence of placement in an inclusion classroom as well as other variables on the academic achievement of students on the Grades 6-8 NJ ASK in an urban school district in New Jersey. In her recommendations for future research, Robinson suggested recreating the study with a sample in an urban, suburban, or rural setting. This study could potentially build on her research. By focusing on the possible influence of a co-taught inclusive model as well as other variables, this study sought to produce research-based evidence to assist in determining if the co-taught inclusive model might influence the performance of general education students in a mid/upper socioeconomic New York City suburb school district.

By shifting the research to a different population in terms of ethnicity and socioeconomic status and using a different instrument in a different state, the study could add to the limited research that exists regarding the co-taught inclusive model's impact on general education students at the middle school level, which could lead to further research in the area.

Conceptual Framework

"A conceptual framework is used in research to outline possible courses of action or to present a preferred approach to an idea or thought" (Mehta, 2013). The conceptual framework for this study was based on the input-output theoretical framework model. Chapter 2 discusses the student variable "inputs" that influence student academic achievement. These "inputs" are categorized by student and school variables. The "output" variables were student academic achievement on the NYS Assessments in ELA and/or Mathematics. Figure 1illustrates the conceptual model for this study (Robinson, 2012).

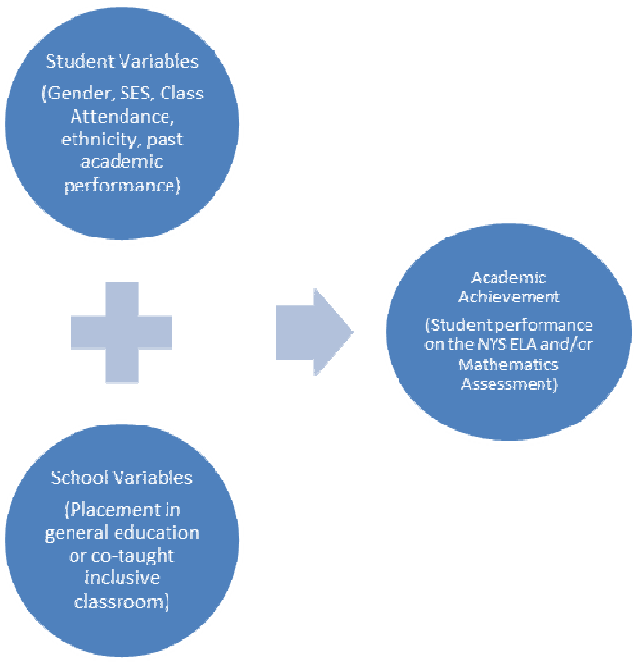

Figure 1. Input/output framework.

Research Questions

The following research questions guided this study:

Research Question 1: What influence, if any, does placement in a co-taught inclusive classroom have on general education students' ELA achievement as measured by the 2014 New York State ELA Assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Research Question 2: What influence, if any, does placement in a co-taught inclusive classroom have on general education students' math achievement as measured by the 2014 New York State Mathematics Assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Research Question 3: What is the probability of a Grades 6-8 general education student passing the 2014 New York State ELA Assessment based on placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Research Question 4: What is the probability of a Grades 6-8 general education student passing the 2014 New York State Mathematics Assessment based on placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Research Question 5: What, if any, type of interaction exists between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' ELA achievement as measured by the 2014 New York State ELA Assessment when controlling for past academic performance?

Research Question 6: What, if any, type of interaction exists between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' mathematics achievement as measured by the 2014 New York State Mathematics Assessment when controlling for past academic performance?

Null Hypotheses

Null Hypothesis 1: There is no statistically significant relationship between placement in a co-taught inclusive classroom and a general education student's academic achievement in Grades 6-8 on the 2014 New York State ELA assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Null Hypothesis 2: There is no statistically significant relationship between placement in a co-taught inclusive classroom and a general education student's academic achievement in Grades 6-8 on the 2014 New York State Mathematics assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Null Hypothesis 3: There is no statistically significant difference in the probability of a Grades 6-8 general education student passing the 2014 New York State ELA Assessment due to placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Null Hypothesis 4: There is no statistically significant difference in the probability of a Grades 6-8 general education student passing the 2014 New York State Mathematics Assessment due to placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Null Hypothesis 5: There is no statistically significant interaction between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' ELA

achievement as measured by the 2014 New York State ELA Assessment when controlling for past academic performance.

Null Hypothesis 6: There is no statistically significant interaction between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' mathematics achievement as measured by the 2014 New York State Mathematics Assessment when controlling for past academic performance.

Study Design

This study was conducted using a relational, explanatory, non-experimental design. This was due to the fact that I was unable to develop an experimental design with randomized assignment of subjects for the treatment and control groups. To alleviate this potential selection bias, propensity score matching was utilized to provide a balanced sampling technique. In conjunction with propensity score matching for selecting an unbiased, overall sample, multiple regression analysis, logistical regression analysis, and factorial ANCOVA were used to answer the research questions previously posited.

The data obtained for this study were from a middle school with a mid/upper socioeconomic population located in a suburb of New York City. The school district has over 84,000 residents, a median household income of $117,018, and 2.75% of families live in poverty. The middle school houses students in Grades 6-8 and has approximately 2,100 students total. The data consisted of student assessment scores from the 2014 New York State Assessment in English Language Arts and Mathematics for Grades 6-8.

Significance of the Study

Inclusion has become a common method of instruction in public schools across the country. The goal of finding the least restrictive environment for special education students has

led to an increased use of the co-taught inclusive classroom (Nichols et al., 2010). At the same time, the NCLB and Race to the Top legislation has put increased emphasis on performance for all students on high-stakes testing, including having those assessment scores used to measure the effectiveness of teachers.

As a result, the relationship of placement in a co-taught inclusive classroom on student achievement should be analyzed. This study could enable researchers to begin to fill the research gaps regarding the co-taught inclusive classroom and its impact on general education students. In addition, by analyzing other variables, the study could also aid in determining which specific general education students may benefit from a co-taught inclusive classroom versus a general classroom environment.

District and building administrators, as well as other district stakeholders, must evaluate the co-taught inclusive classroom model to determine if implementing, or continuing the use of, the model is in the best interest of all students involved.

Limitations

There were limitations to this study of the relationship between student performance and assignment to a co-taught inclusive classroom. As a result, it is difficult to make generalizations based on this study.

Non-experimental research was used in this study because I was unable to develop an experimental design with randomized assignment for the treatment or control groups. While non-experimental design is used frequently in education research, it is not as reliable as experimental research. However, propensity score matching was also used to provide a balanced sampling technique and reduce the influence of selection bias.

The make-up of individual classes presented a limitation to the study. Although accounting for certain variables that could impact individual classes, other variables, such as the varying ability levels of the general education students or the number of special education students in a specific class, within the limits of the law, could not be controlled.

Since only one school district was being utilized, only one co-taught inclusive model was being assessed. Each district that develops a co-taught inclusive classroom model could be different. The implementation, expectations, and resources used by a district and the goals of their co-taught inclusive model could all be different. The co-taught inclusive model could differ from classroom to classroom because, by definition, the co-taught inclusive classroom contains many different models that can be implemented each day (Cook & Friend, 1995).

Delimitations

There were a number of delimitations in this study. Data analyzed for this study included only one school district. The students in this public school district were from an upper-middle class New York City suburb. While these data may be generalizable for similar populations in similar school districts, they are not generalizable to all schools and students.

The data were collected and analyzed for the 2013-2014 school year. Only Grades 6, 7, and 8 were examined for this study.

Multiple regression analyses were conducted on variables to better isolate the relationship that placement in a co-taught inclusive class may have on student performance. However, not all variables could be accounted for.

Data were collected from the New York State ELA and mathematics assessment.

Assumptions

Assumptions regarding certain aspects of the teachers and student population in this study were made.

First, it required that all teachers in the school district have been effectively trained on how to utilize the co-taught inclusive model in the classroom. According to the school district, every teacher, both general education and special education, who participated in a co-taught inclusive model had received training. This included the various types of learning strategies that can be incorporated into instruction (Murawski & Swanson, 2001).

Second, that the teachers in the co-taught inclusive model were willing participants and tried their best to successfully implement the model in their classroom.

Third, that teachers were willing to work with their partner and that their relationship was not having a negative impact on the students' learning environment. This study analyzed student assessment data. No data were collected on teacher perceptions of the co-taught inclusive model or teacher's perceptions of their co-teaching partner.

Fourth, that the students, who were not held accountable for the ELA and mathematics state assessment, were working up to their potential on the exam.

Definition of Terms

Co-Teaching — is defined as two teachers, one a regular education teacher, and one a special education teacher working together in which both are equals to provide instruction to students (Dieker & Murawski, 2003).

Co-taught Inclusive Classroom — the incorporation of students with a full range of abilities and disabilities in the general education classroom (Burke & Sutherland, 2004) with one

a regular education teacher and one a special education teacher working together, in which both are equals to provide instruction to those students (Dieker & Murawski, 2003).

Inclusion — the provision of educational services to students with a full range of abilities and disabilities in the general education classroom with appropriate in-class support (Burke & Sutherland, 2004).

General Education Students — students in the co-teaching or general classroom setting that were not classified as having learning disabilities.

Least Restrictive Environment — a requirement based on the Individuals with Disabilities Act (IDEA) that states that disabled students must be taught in the regular classroom with general education students to the best extent possible (Nichols et al., 2010).

New York State ELA Assessment — an assessment that students in New York State public schools take yearly from Grades 3-8 to determine mastery of the Common Core State Standards. The test consists of a variety of question types, including multiple choice and short answer questions based on reading passages. The assessment is measured using a scale score, which is used to compare test results across grade levels (New York City Department of Education, 2014).

New York State Mathematics Assessment — an assessment that students in New York State public schools take yearly from Grades 3-8 to determine mastery of the Common Core State Standards. The test consists of a variety of question types. The assessment is measured using a scaled score, which is used to compare test results across grade levels (New York City Department of Education, 2014).

No Child Left Behind (NCLB) — federal law designed to ensure all students in public schools are educated by highly qualified teachers in a safe environment and are meeting specific

targeted learning goals, with the overarching goal of increasing student achievement (Yell et al., 2005).

Race to the Top — a federal initiative under the Obama administration designed to improve assessments and develop more rigorous standards, adopt better progress-monitoring tools for school districts, assist in teacher school leader development, and place a greater emphasis on intervening in and improving low-performing schools (Klein, 2014).

Special Education — instruction/programming specifically designed to meet the needs of a student with a disability.

Special Education Students — students that have a disability that requires an Individual Education Plan (IEP).

Student Performance/Achievement — measured by individual student scaled scores on the New York State Assessment for Grades 6-8 in English Language Arts (ELA) and math.

Organization of the Dissertation

This dissertation is divided into five chapters. The first chapter provides background on the topic of inclusion, the problem, as well as establishing the purpose of the study: to examine the effects of assignment to a co-taught inclusive classroom on the academic achievement of general education students on the New York State Assessment for English Language Arts (ELA) and mathematics in Grades 6-8 at a middle school in a mid/upper socioeconomic school district located in a suburb of New York City.

Chapter 2 is a literature review on the topic of the inclusive co-taught classroom and its influence on the general education student. Chapter 2 is divided into the following sections: Special Education History and Legislation, Inclusion, Co-Teaching, General Education Students

in the Inclusion/Co-Taught Inclusive Classroom, and General Education Students and Variables Impacting Academic Achievement.

Chapter 3 provides the methodology for the study. This section describes the school district, an upper middle class suburban P-12 school district located 25 miles from New York City, as well as the instrumentation, the New York State ELA and Mathematics Assessments. The chapter also contains a brief description of the data analysis, which includes propensity score matching, along with simultaneous and hierarchical multiple regression analysis, logistic regression analysis, and Factorial ANOVA.

Chapter IV is an analysis of the data. For each research question, the question, null hypothesis, analysis and results are provided.

In Chapter V, the six research questions that were examined are listed and the results discussed. The results are analyzed and compared to previous research on the subject. Based on the findings, recommendations for administrative policy and practice, as well recommendations for future research are made.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The purpose of this study was to examine the influence of placement in a co-taught inclusive classroom on the academic achievement of general education students on the 2014 New York State Assessment for English Language Arts (ELA) and Mathematics in Grades 6-8 at a middle school in an upper middle socioeconomic school district located in a suburb of New York City. This literature review examined research related to the topic of the relationship of placement in a co-taught inclusive classroom on student achievement of general education students as well as variables that impact student achievement of general education students. The literature review is divided into the following sections: legislation related to special education, the impact of inclusion on general and special education students, co-teaching models and teacher perceptions of the co-taught inclusive classroom, research related to general education students in the co-taught inclusive classroom, research involving student variables (socioeconomic status, ethnicity, attendance, and gender), and academic achievement.

The first section is a review of the legislation at the national level that has impacted special education and led to changes in schools and classrooms over the years. It begins with a brief history of early public school education and the failure to adequately educate students with disabilities. The focus then shifts to the Individuals with Disabilities Education Act and the various amendments made to the law over the years. Included are a series of court cases that benefited students with disabilities, making positive changes to their education. The premise of this first section is to provide a background and chronology leading to the growth of the inclusion classroom, which in turn led to the growth of the co-taught inclusive model within the

inclusion classroom.

The second section focuses on inclusion. Inclusion is a product of school districts providing the least restrictive environment (LRE) for students with disabilities. This provides an explanation of how the inclusion classroom has grown and evolved, eventually leading to the co-teaching model within the inclusion classroom. Following the history, this section includes empirical studies on inclusion and its impact on both students with disabilities and general education students.

The third section focuses on the co-taught inclusive classroom. In this section the terms *co-teaching* and *general education students* are defined, which, along with inclusion, leads to the term *co-taught inclusive classroom* used in this study. Teacher perceptions of co-teaching are examined, as well as early research on the impact of co-teaching on students with disabilities.

The fourth section focuses on research related to general education students and the impact of the co-taught inclusive classroom on their academic achievement. This section includes empirical studies as well as synthesis at the end of the section.

The final section examines research related to student variables and academic achievement. In this section, variables that have an impact on the academic achievement of general education students—like socioeconomic status, ethnicity, gender, and class attendance—are reviewed. In addition, research involving propensity score matching, one of the statistical analyses used in the study, is included.

Literature Search Procedures

To complete the following literature review, the framework developed by Boote and Beile (2005) was utilized. The literature reviewed was accessed via online databases including ProQuest, Academic Search Premier, and ERIC, as well as literature from online and print

editions of scholarly journals, magazines, and books. For each of the five literature review sections a different search was required. For the section on special education history and legislation, "special education" and either "history," "laws," "Supreme Court Cases," or "legislation" were searched on the databases. For the section on inclusion, "inclusion" and either "definition," "models," or "impact on students" were included. For co-teaching, the terms "co-teaching" or "collaborative teaching" were used with either "definition," "history," "impact on students," or "teacher perceptions." For the fourth section on inclusion and co-teaching and general education students, the terms "co-teaching" and "collaborative teaching" were used with "impact/effects on regular education students."

Following the initial search of the databases, "footnote chasing" was used to find relevant studies used by researchers in the past. Each section includes reviewed literature utilizing both qualitative and quantitative data.

Methodological Issues

There were some common issues faced when reviewing and analyzing the literature on the topics of special education, inclusion, and co-teaching. The biggest issues faced were the following:

- the lack of experimental studies
- the lack of inclusion of effect size in the results
- a lack of depth in defining key terms

The first issue was the lack of experimental studies. The co-taught inclusive classroom is a newer model of teaching. As a result, there is not a great deal of experimental research on the topic. This is a problem that Mastropieri and Struggs (1996) noted when completing a meta-analysis of quantitative data on co-teaching. Additional research has been published on the

topic, but the lack of depth created gaps that need to be addressed.

A second issue was the exclusion of effect size in the results. Effect size provides a standard score that allows the researcher to determine the magnitude in a difference (Cohen, 1988). In the case of this research review, having the effect size would assist in determining whether or not co-teaching has a small, moderate, or large effect on various student outcomes. The exclusion of effect sizes in many of the studies raises doubt as to the reliability and validity of the findings.

The third issue regarded the definition of key terms used in the research. Notably, most researchers defined co-teaching within their study but often failed to describe the type of co-teaching program used in the school where data were collected, how the co-teaching program was implemented, which co-teaching strategies were implemented, whether or not teachers and administrators approved and supported the program, the amount of training and support received by the teachers for the program, and the selection process used for matching teachers. These gaps bring into question the type of co-teaching program put into place in each study, which then brings into question the findings, making it difficult to determine the reliability of some of the information.

Another definition that was not comprehensive was students with disabilities. With such a vast amount of disabilities and a spectrum of levels for each, researchers should include data as to disability type and severity in any research analyzing students' outcomes and students with disabilities. This information was not present in many of the studies.

Inclusion and Exclusion Criteria for Literature Review

Studies that fell under the following categories were included in this review:

- Qualitative and quantitative research

- Grade levels K-12, but not college level studies
- Peer reviewed, dissertations, or government reports
- Published within the past 15 years unless considered a seminal work

The first section of the review focuses on special education legislation and trends leading up to the present. As a result, much of the first section contains literature on key legislation, court rulings, and research on programs involving special education. Laws at the national level are the focus, as well as court cases that had an impact on the entire country and education policy in general. Local court cases were excluded from research if they did not impact legislation and education nationwide.

The second section focuses on inclusion. In this section, many of the older articles in the literature review exist as a means toward defining inclusion and helping to elaborate on how inclusion has grown and been redefined over the years. One key seminal work**,** a meta-analysis of inclusion from 1959-1994 by Mastropieri and Struggs (1996) on teacher perceptions of students with disabilities and inclusion as time progressed is included. This study also provides background information as to how the co-teaching model evolved.

Experimental studies were also included in the research (Daniel & King, 1997; Brady, 2010; Robinson, 2012; Brown, 2015) to determine the effectiveness of inclusion without the addition of the co-teaching model.

The third section defines co-teaching, explains the various models used, and examines studies on teacher perceptions and student outcomes. Early research on co-teaching in the inclusive classroom was used to establish the definition and models from the leading researchers on the topic (Dieker & Murawski, 2003; Friend & Cook, 2005). Much of the research on teacher perceptions was qualitative. All of the research regarding student outcomes, including student

performance, was quantitative. Dissertations were the primary means to identify and analyze quantitative studies; journal articles provided the qualitative research regarding teacher perceptions. College level students and charter and private schools were excluded from the literature review. All major subjects—English, math, social studies, and science, or their equivalent—were included; all other subjects were excluded.

The fourth section focuses on co-teaching in the inclusive classroom and the impact on general education students. The studies used were quantitative and included students in Grades K-12. Some of the studies were experimental and others quasi-experimental.

The final section focuses on student variables that impact student achievement. Research on socioeconomic status, ethnicity, class attendance, and gender were analyzed to determine the impact on student achievement.

Special Education History and Legislation

Students with disabilities struggled for equal opportunities in education prior to federal mandates for special education. Although most states had some form of public education around 1920, there were few opportunities for students with disabilities in those schools. Even when the federal government began providing funds for public education with the National Defense of Education Act in 1958, students with disabilities continued to be deprived of an adequate education. In fact, the only students with disabilities receiving anything close to an "appropriate" education were those students who were deaf and blind, and these students were educated in state-run facilities away from home (National Center for Learning Disabilities, 2012).

According to the U.S. Department of Education (2007), only 20% of all students

with disabilities were educated in U.S. schools in 1970. However, the *Brown v. Board of Education* decision, which mandated that schools desegregate across the country, provided a spark for change. Many leaders who advocated for desegregation of students with disabilities used the case as grounds that students with disabilities should not be excluded from public schools (La Morte, 2008). As the movement to improve these conditions increased, the federal government began to implement changes. One of the first laws relevant to special education was the Elementary and Secondary Education Act (ESEA), which focused on equal access to education but targeted underprivileged and economically disadvantaged students over students with disabilities. The law evolved over time, replaced by Title VI, which was in turn repealed and replaced by the Education of the Handicapped Act. The Education of the Handicapped Act created the Bureau of the Education of the Handicapped (BEH) and the National Advisory Council, which is now called the National Council on Disability (Parents United Together, 2012). While these laws did not create the federal, state, and local mandates for students with disabilities that exist today, the legislation did bring attention to the needs of students with disabilities and provided a starting point for further legislation and change (La Morte, 2008).

Two major court cases in 1972, *Pennsylvania Association for Retarded Children (PARC) v. Pennsylvania,* and *Mills v. Board of Education of the District of Columbia* provided turning points for students with disabilities. In *PARC,* parents of students with mental retardation sued their school district, challenging that their children should not be excluded from public education. The court ruled in favor of the parents, citing the Equal Protection Clause of the Fourteenth Amendment of the United States Constitution. As a result, the federal court held that all students, ages six through twenty-one should be provided access to a free public education. In addition, the court went further in laying the groundwork for establishing the least restrictive

environment (LRE). Specifically, the court mandated that public schools in Philadelphia "place each mentally retarded child in a free, public program of education and training appropriate to the child's capacity, within the context of a presumption that, among the alternative programs of education and training required by [state law] to be available, placement in a regular public school class is preferable to placement in a special public school class, and placement in a special public school class is preferable to placement in any other type of program of education and training." (New York State Education Department, 2009).

In *Mills*, a case involving seven students who were denied access to a free public school education was brought to the courts. These students had various disabilities, ranging from mental retardation to hyperactivity. The federal court ruled in favor of the students, stating that all students ages six to sixteen must be provided a free and adequate education, in regular classrooms if possible and, if not, in another “adequate” alternative that met the child’s needs (Touro Law Center, 2012).

These two cases began to eliminate the exclusion of students with disabilities in classrooms and began to mandate adequate services for those students. These cases provided a foundation for the Individuals with Disabilities Education Act (IDEA), which remains the cornerstone of special education legislation (Weber, 2009). The cases also created a framework for which inclusion of students with disabilities in mainstreamed classrooms would be based.

Prior to IDEA, the first legislative mandate to have a major impact on students with disabilities was Section 504 of the Rehabilitation Act of 1973. The law was designed to protect people with disabilities against discrimination because of their disabilities. In terms of students, Section 504’s impact was in mandating that every child with a disability be guaranteed access to a free, appropriate, public education (FAPE). While “appropriate” remains difficult to define

today, it did provide for the services necessary for handicapped children to be educated in public schools (U.S. Department of Education, 2010).

The Individuals with Disabilities Education Act (IDEA) began in 1975, with the *Education for All Handicapped Children Act*. The initial law had four purposes: to ensure that students with disabilities received a public education with the necessary services, to protect the rights of such students, for the federal government to assist with the education of students with disabilities, and for the federal government to monitor the effectiveness of education for special education students (*Education for All Handicapped Children's Act of 1975*). This law was amended in 1990, and is currently known as the *Individuals with Disabilities Education Act* (IDEA). The 1990 amendment required that students with disabilities have access to and be part of the general education curriculum. This would lead to an increase in inclusion classrooms in public schools (Yell, Drasgow, & Lowrey, 2005). A later amendment in 1997 created a change in terminology from "handicapped children" to "children with disabilities."

IDEA remains the most important and impactful legislation for students with disabilities. The original law mandated the following:

- Free and Appropriate Public Education (FAPE)
- Due process for children with disabilities
- Individual Education Plans (IEPs)
- Least Restrictive Environment (LRE) placements for students with disabilities
- The requirement of local schools to provide services and educate students with disabilities within their communities (National Center for Learning Disabilities, 2012).

Prior to the many amendments that have been influential in creating the inclusion and co-taught classrooms, a significant court case helped further define IDEA. In *Board of Education of the Hendrick Hudson Central School District v. Rowley*, the Supreme Court's ruling provided clarification of the law. The debate was over the term FAPE, and how "appropriate" education should be defined. The court determined that an education program must be created to fit the needs of the student with a disability. However, the district is not required to create a program that maximizes the student's ability to learn, but one that will "permit the child to benefit educationally" (La Morte, 2009). Many thought the original premise of the law was to maximize the services necessary for the student to succeed in the classroom, but *Rowley* limited the extent of the term *appropriate*.

The combination of two relatively recent pieces of legislation, No Child Left Behind (NCLB) and IDEA 2004, have moved more students with disabilities into the general education classroom for a variety of reasons (Katsiyannas & Shiner, 2006).

The Bush administration passed NCLB in 2001. The law increased the role of the federal government in education and changed the way public schools operate. The primary goal was to improve student achievement by holding schools accountable for results. The main goals of NCLB are as follows:

- All students will achieve high academic standards by attaining proficiency or better in reading and mathematics by the 2013–2014 school year.
- Highly qualified teachers will teach all students by the 2005–2006 school year.
- All students will be educated in schools and classrooms that are safe, drug free, and conducive to learning.
- All limited English-proficient students will become proficient in English.

- All students will graduate from high school (Yell, Drasgow, & Lowrey, 2005)

The purpose of many of these goals was to improve instruction for special education students. To hold districts accountable, NCLB required that special education students sit for state assessments and that the scores of special education students on state assessments be part of the evaluation matrix used to determine the effectiveness of the school in meeting adequate yearly progress (AYP) (Katsiyannas & Shiner, 2006). The result was increased emphasis on the achievement of students with disabilities on state assessments. Many districts looked at how to improve the scores of special education students, which led them to analyze the effectiveness of the inclusion classroom. One of the results was an increase in co-teaching in inclusion classrooms in public schools.

Inclusion

Inclusion education became a part of public schools with IDEA and the amendments that followed (Nichols et al., 2010). According to Burke and Sutherland (2004), inclusion education is "the provision of educational services to students with a full range of abilities and disabilities in the general education classroom with appropriate in-class support." Furthermore, the authors identify inclusion as a responsibility of public schools to educate students with disabilities in the general education classroom.

As a result, the inclusion model has led to students receiving the majority of their instruction in the general education classroom. Phi Delta Kappa's Center for Evaluation, Development, and Research defines inclusion as "a term which expresses commitment to educate each child, to the maximum extent appropriate, in the school and classroom he or she would otherwise attend. It involves bringing the support services to the child (rather than moving the child to the services) and requires only that the child will benefit from being in the class

(rather than having to keep up with the other students)" (Wisconsin Education Association Council, 2007).

The concept of educating students with disabilities in the general education classroom differed from the initial approach. For years following the initial law, the special education model in most schools called for the "pull-out" approach, where a special education teacher taught a special education student in an environment away from the rest of the students (Ross-Kidder, 2003). At the elementary schools, this meant taking the special education student out of the general education classroom for a certain amount of time per day. At the secondary level, it meant placing students in a "self-contained" classroom, where only a certain number of special education students are taught by a special education teacher for at least one class period per day (Ross-Kidder, 2003). In many cases, the "pull-out" approach is still utilized in schools today. However, over time a movement to a full inclusion classroom increased.

Kavale and Forness (2000) defined inclusion as "a movement seeking to create schools that meet the needs of all students by establishing learning communities for students with and without disabilities, educated together in age-appropriate general education classrooms in neighborhood schools." This led to a movement in the 1980s called the Regular Education Initiative that focused on how students could all learn in the same environment because they are similar, even if some are learning disabled. It also made the assumption that teachers could educate all students within the general education classroom. This led to a division amongst educators in the vision for how students with disabilities should be educated (Kavale & Forness, 2000).

The result was research on the impact of inclusion on teachers, students with disabilities, and general education students. Much of the initial research focused on teacher perceptions.

One of the most thorough studies was completed by Scruggs and Mastropieri (1996). The researchers conducted a quantitative meta-analysis of 28 studies involving teachers and their perceptions of inclusion. From 1958 to1995, 10,560 teachers were surveyed. Broken down by grade level, 2,035 teachers were elementary educators, 4,133 were middle school level, and 421 were high school teachers.

The researchers identified common survey topics and questions from the 28 studies, and then the percentage of respondents who chose certain answers was collected. In certain cases where percentages were not available, the researchers calculated the percentage by using standard deviation from the mean. Next, total percentages were calculated by taking all of the responses to a certain question. For instance, one of the questions across many of the studies was "Do teachers support mainstreaming/inclusion with disabilities in general education classes?" A total of 7,385 of the teachers from the studies answered a question similar to this one. Of those surveyed, 65% indicated support for inclusion. Seven questions were analyzed in a similar fashion. For each, overall percentages, as well as percentages based on grade level, geographic location, and year of the study were used.

The results showed that teachers support teaching students with disabilities in the general education classroom; however, most teachers (72.3%) did not believe they had the time to effectively teach inclusion classes. Over 80% of teachers believed that inclusion created or would create more work for them, and only 29.2% of teachers surveyed believed they had sufficient training for inclusion. There was a discrepancy amongst special education and regular education teachers on a few issues. For instance, special education teachers believed that students benefit more from inclusion (66.6%) than their general education counterparts (54.4%).

This study contains a vast amount of research across all levels that can be useful. However, the study does not contain effect size for any of the data obtained. In addition, the time period studied may go back beyond what is relevant to research today, prior to most key legislation for students with disabilities. Also, the research contains no data on how students perceive inclusion and if they achieve at higher levels within the model. Overall, the study is useful, but analyzing more recent research with student-based data is necessary.

Current research on the perceptions of teachers and administrators support the meta-analysis completed by Scruggs and Mastropieri (2006). Daunarummo (2010) studied administrator and teacher perceptions of the components necessary for successful implementation of inclusion programs. In this descriptive, qualitative study, teachers and administrators were interviewed in focus groups and asked questions involving three categories: effective inclusion, necessary and provided supports, and supports needed and received. The researcher found that teachers and administrators agreed that having a positive attitude toward inclusion and a good collaborative working relationship between the special education and general education teachers were important factors in successful implementation of an inclusion program. Among the barriers to successful implementation, both general education and special education teachers noted the importance of common planning time and additional professional development, similar factors to those noted by Scruggs and Mastropieri (1996).

Galano (2012) focused solely on elementary urban principals' perceptions of inclusion. The researcher's instrument was the *Principals and Inclusion Survey Modified for Urban Educators* (PISMUE). The survey collected data on demographics, experience, and attitudes of principals toward inclusion. The results indicated that principals with more training and professional development on inclusion programs had more positive attitudes toward inclusion.

Overall, research of teacher and principal perceptions of inclusion show mixed feelings toward inclusion. However, once key variables are addressed, like providing professional development and planning time, research indicates that teachers and principals have a positive perception of inclusion (Scruggs & Mastropieri, 1996; Duanarummo, 2010; Galano, 2012).

Following Scruggs and Mastropieri's (1996) meta-analysis, future studies focused more on quantitative data and on student outcomes, including student achievement (Daniel & King 1997; Brewton, 2005; Brady, 2010; Robinson & Babo, 2014). Daniel and King (1997) looked at the impact of inclusion on dependent variables, including parent concerns, behavior problems, academic achievement, and student self-esteem. The study was a quasi-experimental quantitative study. The sample included 207 students from Grades 3-5. The control group consisted of students in a general education classroom, while the experimental group consisted of students in an inclusion classroom. The instrument used to measure academic achievement was a standardized achievement test in reading, math, language, and spelling. The pre-test was the standardized test given the year prior to the study, and the post-test was the standardized test given after the study. The test used was the Stanford Achievement Test. An analysis of variance (ANOVA) was used to determine any difference in achievement levels prior to the implementation of the treatment. The effect size showed no meaningful difference.

The researchers found that the inclusion setting did have a moderate effect on the dependent variables tested in the study, with effect sizes ranging from .31 to .37. However, the researchers noted that inclusion did not impact academic achievement in most areas. Third grade reading scores improved but fourth grade math scores did not. As a result, the researchers warned against implementing an inclusion model for the sole purposes of improving academic achievement.

The article featured many strengths. First, multiple dependent variables were tested to determine the latent variable of whether or not inclusion has an impact on various dependent variables. Effect size was calculated to determine the magnitude of the difference inclusion causes for the dependent variables versus other teaching models. Effect size was also calculated for the pre-test achievement scores to determine if student achievement levels were equal from the start. In addition, the sample size was large enough to be considered reliable. All of the instruments had been tested in previous studies and deemed reliable.

One of the limitations mentioned by the researchers was that the study was quasi-experimental. This occurred because the students were already placed in their classroom setting, whether inclusion, cluster inclusion, or general education. The authors noted this was a common problem for studies on inclusion. Another weakness was the lack of information on the type of inclusion program, the amount of training teachers received before becoming involved in the co-teaching program, and whether or not the teachers support the program.

The fact that this study differs from other research on the topic should be noted, and additional reviews of literature are necessary on the topic.

Brewton (2005) examined the effects of inclusion on general education students at the middle school level. The researcher used assessment scores from high-stakes state examinations in two middle schools. For Grades 5-7, the Standard Proficiency Assessment (SPA) was used. For Grade 8, the Grade Eighth Proficiency (GEPA) was the instrument. A *t*-test was used to determine the influence of the inclusion model on general education students. The math scores of the general education students in general education classrooms were compared to the scores of general education students in an inclusive setting. Similar to Daniel and King (1997), the

researcher's findings indicated that there was no statistical significance in achievement scores for general education students in an inclusive setting versus those in a general education classroom.

Brady (2010) researched the impact of inclusion on general education students at the middle school level in math and English-Language Arts (ELA). The study was a non-experimental quantitative longitudinal study. The sample consisted of sixth and seventh grade students. The study took place over two years. In 2006-2007, 240 sixth grade students and 223 seventh grade students were tested. In 2007-2008, 245 students in sixth grade and 237 and seventh were part of the sample. The control group consisted of general education students in general education classes. The experimental group consisted of general education students in inclusion classes.

The instrument used was the NJ ASK Language Arts and Math assessment. The assessment is standardized and deemed reliable by the researcher. An independent two-tailed *t*-test was used to analyze the data. Test scores of the control and experimental group were compared. No pre-test was given to the control or experimental group. Afterwards, the effect size was calculated to determine the magnitude of difference the inclusion setting caused for regular education students.

The author's findings showed that general education students are not hindered by being in an inclusion setting with students with disabilities. The author had eight analyses of regular education students in a general setting versus general education students in an inclusion model. Three of the analyses showed gain or loss in academic achievement for regular education students, while five analyses showed academic growth for students. The effect sizes ranged in the analyses, from moderate effect size to a strong effect size.

The author included data from multiple years, calculated effect size for all results, and

provided a reliable sample size. However, the study lacks a pre-test that could provide a baseline and determine if the post-test results truly showed academic growth. The results can add to the current research on the topic, but the weaknesses must be noted.

Robinson and Babo (2014) examined the influence of inclusion and student demographic variables on the academic achievement of general education students at the middle school level. The sample population was from two middle schools from the same urban, low middle class school district in central New Jersey. Similar to Brady (2010), the researchers utilized the NJ ASK assessment as their instrument. A series of hierarchical multiple regression analyses were conducted to determine the influence of placement of general education students in inclusive or non-inclusive classrooms when controlling for student mutable variables.

The results indicated that in one of the two middle schools from the study classroom placement was not a significant predictor of general education student achievement. This finding is similar to past research on the subject (Daniel & King, 1997; Brewton, 2005; Brady 2010). However, in the other middle school, the researchers found that inclusion status was a predictor of academic achievement of general education students, with those students placed in inclusive settings scoring lower than their peers.

Brown (2015) examined the influence of placement in an inclusive English classroom on the academic performance of general education eleventh grade students on the Language Arts Literacy section of the NJ HSPA. Brown used a suburban sample population. Brown determined that, though the influence was small, placement in an inclusive setting had a negative impact on academic achievement. General education students in an inclusive setting performed lower than their peers in general education classrooms on the 2013 NJ HSPA.

The Co-Taught Inclusive Classroom

Definition and Models

The origins of co-teaching can be found in the 1997 amended version of IDEA. This law required that students with disabilities be taught with "regular" students to the best extent possible (Nichols, Dowdy, & Nichols, 2010). The concept, another form of the least restricted environment standard (LRE), required school districts to find new strategies and models for incorporating special education students into the general classroom. One of the results is the co-teaching model.

Co-teaching is defined as two teachers working together in a classroom in which both are equals to provide instruction to students (Dieker & Murawski, 2003). Nichols, Dowdy, and Nichols (2010), define co-teaching as a collaborative effort between a special education teacher and general education teacher, in which both teachers share responsibility and accountability for the classroom. The goals of co-teaching, according to Mastropieri, et al. (2005) are to improve student performance, educational options, and participation of special education students. Early research on co-teaching focused on teacher perceptions, teacher effectiveness, and effects on special education students. Not until recently has research been conducted on the impact of special education on general education students.

The co-teaching model as described above is implemented into the classroom using multiple strategies. Friend, Cook, Chamberlain, and Shamberger (2010) focused on six. The first consists of one teacher being responsible for the teaching, while the other supports by assisting students in the room that show signs of difficulty. The second is station teaching, where the two teachers divide the content and split students into groups. The third is parallel teaching, where the teachers split the class but teach them the same content. The fourth is

alternative teaching, where groups are split based on ability levels, often times uneven, and the teachers present the same content. The fifth is one teach, one observe in which one teacher is responsible for delivery instruction to the whole group, while the other teacher gathers data on the students. The sixth model is teaming, where both teachers instruct the whole group using strategies such as lecture, debate, or role playing.

These models are used interchangeably within the co-taught classroom (Friend et al., 2010). Two teachers planning a co-taught unit could choose to open the unit with the lecture style teaming model, move to smaller group parallel teaching later in the unit, alternative teaching when a formative or summative assessment shows some students struggling with a concept, and station learning to present information or analyze primary source documents. The models are selected based on data analysis from the teachers. They should examine the IEPs of special education students as well as the learning needs of the rest of the general education class to determine what delivery is best. These decisions should be made by the co-teaching team during planning time (Friend et al., 2010).

Teacher-Based Research

Much of the early research on co-teaching centered upon the impact on teachers. The belief is that a successful marriage between two teachers can lead to student success (Murawski, 2008). The research showed that while many variables affect the opinion teachers have of the co-teaching model, teachers receiving professional development are more likely to succeed (Kline, 2009; Kohler-Evans 2006).

Rice, Drame, Owens, and Frattura, (2007) researched the various factors that can promote a positive co-teaching experience. The researchers looked at 15 co-teaching pairs and studied their experiences over one year. Some of the co-teaching pairs were observed while others were

interviewed. All of the participants in the research were high school teachers. The researchers looked at many factors to determine the effectiveness of the co-teaching pairs but focused on six key components. First, they attempted to measure the impact of professionalism on co-teaching effectiveness. Second, they studied the co-teaching pair's ability to collectively articulate and model instruction. Third, the co-teachers had to effectively assess student progress. Fourth, the researchers observed teaching styles. Fifth, they observed the pair's ability to work with a wide range of students. Finally, the researchers determined the pair's knowledge of the content area (Rice et al., 2007). For the co-teaching pair to be effective and successful, they had to meet the researcher's specifications as listed for each component. In each case study, the researchers determined effectiveness by focusing on the success or failure of a specific component. The researchers found mixed results and determined that many factors can impact the success and failure of co-teaching.

Isherwood and Barger-Anderson (2008) also used observations and a component system to determine the effectiveness of co-teaching. In this study, they took a sample of students and teachers from an upper middle class, suburban middle school in the United States. The researchers observed classrooms and interviewed teachers and students to determine the effectiveness of co-teaching. The co-teaching program was recently implemented into this school district, and no teacher had experience with the model before the study. Fifteen regular education teachers and three special education teachers made up the teacher sample. The student sample was determined by the classes observed throughout the research. The school has 650 students. The researchers visited the school each month and observed six classrooms, completing 96 observations in all throughout the study. Their list of essential components used to evaluate the co-teaching consisted of interpersonal communication, physical arrangement,

familiarity with curriculum, curriculum goals and modifications, instructional planning, classroom management, and assessment (Isherwood & Barger-Anderson, 2008). The researchers determined that successful co-teaching was dependent upon the partnership between the teachers, which was randomly assigned by administration in this study. Thus, they concluded that a random partnering method will often lead to incompatibility between teachers.

Brouck (2007) also researched the relationship of teachers within the co-taught classroom. In this qualitative design study, Brouck chose an urban school district in Michigan. The sample included two co-taught eighth grade United States history classrooms. Both classes had a regular education teacher and a special education teacher. The teachers were the same for both classes. The regular education teacher taught only United States history, while the special education teacher taught United States history for two hours each day, and reading for the rest. Both teachers were relatively inexperienced, having taught less than four years. The special education teacher was in her first year teaching United States history. The two teachers shared common planning time together. The researcher used classroom observations and teacher interviews to collect data. The observations were held two to three times a week for nine weeks. Data analysis was based upon the researcher grouping interview thoughts and observations into various themes. From the themes the researcher concluded that co-teaching is a difficult process, where success requires the hard work and dedication of the teachers involved. Factors listed in leading to an outcome were ability to role-play and spacing in the classroom. Each factor was divided into several sub-factors.

Student-Centered Studies

While much of the early research on co-teaching focused on the teacher relationships because the method was in its infancy, researchers also studied the impact on special education

students. Similarly to the teacher-based research, some researchers used qualitative research, including observations and interviews for their studies (Mastropieri et al., 2005). Other researchers, on the other hand, used quantitative research-based data acquired from test scores (Laffitt, 2012; McLeod, 2007; Murawski, 2006) to determine the effectiveness of co-teaching.

One of the first quantitative studies regarding co-teaching was a meta-analysis (Murawski & Swanson, 2001). Meta-analysis is "a statistical reviewing technique that provides a quantitative summary of findings across an entire body of research." Specifically, Murawski and Swanson examined the results of studies and determined effect size. The purpose was to examine the impact of certain variables, including demographic information on results and determine the overall impact of co-teaching.

To obtain the effect sizes, six quantitative studies were used. One of the studies used students in grades K-3, two of the studies used students in Grades 4-6, and three of the studies used high school students, Grades 9-12. The sample sizes varied for each study. One hundred seventy students were used in the K-3 study along with 21 teachers. The results of the study showed a positive effect for co-teaching on student reading scores.

One of the Grades 4-6 studies had 185 students in the sample, 59 students with disabilities and 126 general education students. The study findings determined that co-teaching was less effective than other models for peer acceptance. The second Grades 4-6 study had 114 students in the sample. Twenty-five students were identified as special education students; the other 89 were general education students. The researchers found that students with disabilities improved their reading scores but not their math scores. They also found that the lowest level of learners did not improve their reading scores as compared to their peers.

The three studies at the high school level also contained varied sample sizes. The first had 383 students in the study, 134 students with disabilities and 249 general education students. The results of the study showed that grades improved for students from the first semester to the second semester. The second study placed 706 students into control and experimental groups. The results showed no difference in grades, attendance, and discipline for students in the co-taught model. The last study had 59 students in the sample. The researchers found that students in co-taught ninth grade math classes had higher scores on achievement tests than their peers in traditional classes.

Murawski and Swanson (2006) took these results and examined the effect sizes to determine the magnitude of certain variables within the co-taught classroom. Cohen's (1988) model for determining the magnitude of effect size was used. An effect size of .80 has a large effect estimate, .50 has a moderate effect estimate, and .20 has a small effect estimate. The largest effect size was for reading and language arts achievement, at 1.59. Moderate effect sizes were reported for math achievement (.45) and referrals (.43). Small effect estimates were reported for grades (.32) and absences (.37). For the age levels and grades, high effect sizes were calculated for students in Grades K-3, indicating the co-teaching model may be more effective for students in these grades. The overall mean effect size was .40. As a result, the researchers concluded that co-teaching has a moderate effect for influencing student outcomes. In particular, the authors note that co-teaching may have an impact on student achievement.

Murawski and Swanson's (2006) study was one of the first to examine the quantitative data involving co-teaching. As a result, the researchers themselves considered the results tentative, indicating limitations and weaknesses within their study. First, of the 89 articles collected on the topic of co-teaching, only six were used for the meta-analysis because most were

not research-based, and many of the research-based articles did not contain the necessary data to determine effect size. Of the six studies used for the meta-analysis, most did not identify the type or severity of disability for special education students. In addition, there is no indication as to the type of co-teaching program implemented, the amount of co-teaching training received by the teachers, and the amount of service time for the teachers. There is a lack of experimental studies conducted in meta-analysis. The authors noted that more control and experimental groups are necessary to compare the co-teaching model to other "delivery systems."

Although the authors of the study indicate the potential weaknesses and limitations, the results of this early study provide a good foundation on which to start research and analyze future research. Some of the gaps indicated by Murawski and Swanson (2006) have been filled with more recent research, while others remain.

Laffitt (2012) completed a mixed methods research study comparing the pull-out and co-teaching models and the effects of those models on student reading performance of third to fifth grade special education students. The quantitative portion was a quasi-experimental study.

For the quantitative portion, the independent variable was the classroom model in which students participated, co-teaching or pull-out. The dependent variable was student achievement. The researcher used a Galileo criterion-referenced assessment as an instrument. The instrument was created by a program purchased by the district. An ex-post facto design was used to collect the data.

In all, 56 students with learning disabilities from two elementary schools in Arizona were part of the study. Thirty-one students were part of the district's pull-out program, and 26 students were part of the co-teaching model. The student population was diverse and from a low socioeconomic background. The district also has a high population of ELL learners.

A one-way analysis of variance (ANOVA) was used to compare mean data. The students in grades three to five at both elementary schools were given pre-tests and post-tests in reading. The data were analyzed using SPSS. The study revealed no significance between the pull-out and co-teaching models, which the researcher believed to be contrary to past research.

In terms of reliability, the Galileo program is a nationally accepted program for assessments, making the instrument reliable. Data collection required the use of school databases and no contact with students. The researcher attempted to remove variables by choosing like schools, eliminating low performing schools (that did not meet AYP) and using only K-5 schools, not K-8 schools. However, an admitted weakness by the researcher was the level of proper training for the inclusion models. This was determined by data obtained using a questionnaire given to both special education and regular education teachers, as well as school administrators. In terms of the data, the sample size was small, which could impact the results (Creswell). The effect size was not included in the study. As a result, the results of this study may not be reliable as compared to other research on the topic.

McLeod (2007) also studied the impact of co-teaching on students. This quantitative quasi-experimental research was done at the secondary level and showed no statistical significant difference between the co-teaching model and the general education classroom for students with disabilities versus regular education students.

The study consisted of 603 ninth grade students from five major subjects, including Literature and Composition, Algebra I, Geometry, Physical Science, and United States History. The control group was students in regular education classes. The experimental group was students with disabilities in co-taught classes.

The instrument used was the Georgia End of Course Test (GAEOCT) for each subject. The 2004 version of the tests were analyzed using a reliability coefficient to determine reliability and validity. A pre-test was given at the beginning of the study, and a post-test was administered at the end of the twelve-week treatment.

An ANCOVA was used to analyze the different groups. It was applied to the independent variable, which was the type of instruction model; the dependent variable, which was the mean posttest scores; and the covariate, which was the mean pretest scores. The researcher found that no statistically significant difference existed for student test scores for all subjects except Literature and Composition. Effect size was not calculated.

The study presented many strengths. The study was experimental, and the instrument used was tested and deemed reliable. The researcher analyzed the co-teaching model within the school to determine if it was properly implemented and if teachers were executing the model correctly. The sample size was sufficient.

There were also limitations and weaknesses within the study. The researcher noted that the study was quasi-experimental because the classes were already set prior to the treatment. Also, while the co-teaching model was effectively implemented, there was no way to determine if effective instructional techniques were taking place in all classrooms. Also, the types of and severity of disabilities were not included. Last, effect size was not calculated.

The study possesses strengths but also some limitations that make trusting the findings tentative.

Murawski (2006) conducted research at an urban high school outside of Los Angeles, California. The study sample contained 110 high school English students, 72 of them regular education students and 38 special education students. Four teachers were used for the study,

each of them with more than three years of teaching experience but none of them with co-teaching experience prior to the study. Four teaching arrangements were used for the study. The first was a mainstreaming class, in which special education students were present but did not receive additional support from a special education teacher. The second was a co-taught classroom in which a special education teacher was present on a daily basis. The third was a resource English course that was taught by a special education teacher and contained only students with learning disabilities. The last class was a regular education class taught by a regular education teacher and containing no special education students. Student achievement was measured by giving a pre-test before the study and a post-test after a ten-week teaching period. The researcher also monitored student achievement by interviewing students and teachers and observing classes. The data showed that students with learning disabilities achieved at a higher rate in the co-taught classroom than in the mainstreaming or self-contained classroom.

Mastropieri (2005) used multiple case studies within schools to determine the effectiveness of co-teaching. The classes were either science or social studies and ranged from 20 to 30 students with four to nine being special education students. Data were obtained by observing classrooms and by interviewing teachers and students. The researchers used a component system to evaluate co-teaching. Among the components they evaluated while observing were working relationships, teacher strength as motivators, co-planning, curriculum, instructional skills, and differentiated instruction. The teachers ranged in experience from beginning teachers to those with more than 20 years. As a result of so many variables from the numerous case studies, the researchers concluded that co-teaching effectiveness varies depending upon the circumstances. They focused on the components when evaluating each case study.

School Variables

Co-Teaching and General Education Students

While there is not a large amount of research currently dedicated to the topic, the limited studies have shown a positive impact on co-teaching for general education students. Riedesel (1997) looked at the impact of co-teaching on eighth grade students' achievement in Texas public schools. In this quantitative experimental study, student achievement was measured by state assessment scores and grade point averages. Fifty-one regular education students were part of the co-teaching model, while 148 were part of the regular education model.

The instrument used was the Texas Assessment of Academic Skills test. The Texas Assessment of Academic Skills was designed by the Texas Department of Education and was used to assess the basic skills of students in reading, writing, and math. The students took the test at the end of seventh grade, which was used as a pre-test, then again at the end of eighth grade, which became the post-test. Both tests assess the same skills but have different questions and are grade appropriate. The author included the validity testing of the instrument within the study.

Riedesel used a *t*-test analysis to determine the difference in statistical significance between the control group and experimental groups. The control group was regular education students in the general education model for instruction, while the experimental group was regular education students in the co-teaching model. The *t*-test was used for the assessment as well as grade point average for the students.

The research showed that regular education students in the co-teaching model performed better on the state math assessment and had a higher grade point average than regular education

students in a general education classroom. The effect size was a .34, indicating that co-teaching has a moderate effect on student achievement.

The study featured many strengths. First, a true experimental design was created using random sampling of students. Second, the instrument was tested and proven to be valid and reliable. Third, a pre-test and post-test were utilized, as well as grade point average to eliminate potential variables. This study did mention the setup, implementation process, and staff development given to teachers preparing to co-teach. Effect sizes were calculated to determine the magnitude of a difference in the variables for the study.

In terms of weaknesses and limitations, there were similar issues with this study as compared to other studies on co-teaching. There is no mention of the type of and severity of disabilities among the special education population. There is also no mention of whether teachers had a choice when selecting their co-teaching partner.

Another study that showed the benefits of co-teaching for the achievement of regular education students looked at eighth grade algebra students (Rigdon, 2010). The researcher completed a quasi-experimental quantitative study. Once again, students were split into co-teaching classes, which served as the experimental groups, and general education classes, which served as the control groups. Fifty-eight students were used for the study, including 20 students from the regular education classes and 38 from the co-taught classes. Ten students were special education students and did not factor in the results.

The data collection tool was an algebra test, in which the students received a pre-test, then a post-test after twelve weeks. The instrument was created by educators from Iowa State University, through a program called Algebra Assessment and Instruction Meeting Standards. The instrument was a basic skills algebra assessments (BSAA).

An ANOVA test was used to determine relationships between the variables, while a *t*-test was used to examine variability between co-taught and regular students. The results showed a greater improvement from pre- to post-test for regular education students in the co-teaching model. As a result, the researcher came to the conclusion that "there was a significant difference among the regular education students' achievement on a BSAA in the co-teaching classroom and those not in a co-taught class."

The study presented a number of limitations and weaknesses. First, the sample size was small. Second, only one teacher's class and students were used in the study. Nothing is mentioned of the teacher's training, ability level, and co-teaching partner within the study. Also, the model of co-teaching used is not included in the study. However, the instrument is a reliable assessment that has been used to conduct studies prior to this research, and is an accepted model that many schools have implemented.

Once again, co-teaching proved to be an asset in improving academic achievement of regular education students. The results of this study should be noted, but additional research is needed to determine the impact of co-teaching because of the small sample size and lack of an explanation regarding the co-teaching model used in the school.

Harrison (2011) researched the impact of collaborative inclusion (CI) education on the academic achievement of regular education second grade mathematics students. Collaborative inclusion (CI) classrooms fall under the definition of co-teaching. The design was quasi-experimental, as students of one of the seven elementary schools in the district were chosen for the study. The specific elementary school was chosen because it contained the greatest number of Grade 2 students in the district. The sample size was 172, 152 regular education students and 20 students classified with a learning disability. Students were divided into either regular

education classrooms or collaborative inclusion (CI), which is co-taught. The independent variable was the classroom model. The dependent variable, student achievement, was measured by the end-of-year assessment.

The instrument used was an end-of-year Everyday Mathematics (EM) assessment. No pre-test was used. The EM assessment was aligned with the state and national mathematics standards for second grade. The test scores were then analyzed using an independent sample, two-tailed *t*-test. The mean scores of different groupings of students were compared, including a comparison of regular education students in the co-taught classroom (CI) versus regular education students in the regular classroom. The result of the study showed that there was no statistical significance between the regular education students in the co-taught versus the regular education classrooms on the EM assessment at the .05 level.

In terms of reliability, the instrument, the Everyday Mathematics (EM) assessment is an established and reliable instrument. In addition, the sample size was sufficient. However, there were several limitations and weaknesses to the study. First, no pre-test was used to gain a baseline for the students. Without a pre-test, it is difficult to gauge student progress. Second, there was no indication of if and how teachers and administrators were trained to effectively implement the co-teaching model into the school. Third, the effect size is small, -.268. Overall, the results can add to the current research on co-teaching's impact on student achievement, but the weaknesses must be accounted for when completing future research.

Trabucco (2011) examined the influence of placement in a co-taught inclusive classroom on the academic achievement of third grade general education students in mathematics. The sample population was from an upper middle class suburban elementary school in New Jersey. The researcher used the NJ ASK and conducted independent sample *t*-tests to determine the

extent placement in a co-taught inclusive setting correlates with the academic achievement of general education students. A baseline was created by using the NJPASS test to measure pre-achievement. Specific math standard clusters were included in the research questions and analyzed: Number and Numerical Operations, Geometry and Measurement, Patterns and Algebra, Data Analysis, Probability, and Discrete Mathematics, and Problem Solving. The results of the study indicated no statistical significance between overall performance in mathematics and in all clusters with the exception of Number and Numerical Operations. For this cluster, general education students in a co-taught inclusive placement outperformed their peers in place in the general education classroom. The researcher recommended future research on the subject in which certain student mutable variables (socioeconomic status, gender, and ethnicity) are controlled.

Classroom Peer Effects on Student Achievement

The examination of the influence of co-teaching on the academic achievement of general education students calls into question not only the impact of the co-taught inclusive model on students but also the impact that classroom peer effects have on individual students. By definition, the co-taught inclusive classroom includes students with disabilities into mainstream classrooms that have one general education teacher and one special education teacher. The determination of whether these students are grouped heterogeneously or homogenously is not mandated by federal or state legislation. Individual districts make the local decision of which general education students are selected, whether at random or not, to be part of the co-taught inclusive classroom. Past research indicates that classroom peers can have an influence on a student's academic achievement (Burke & Sass, 2011). In general, the research supports

heterogeneous grouping in order to improve academic achievement amongst low achievers (Slavin, 1987, 1991; Hoffer, 1992; Burke & Sass, 2011).

Slavin (1987) warned against class assignment based on ability, known as between-class ability grouping or "tracking." He stated that research has shown that not only does placement in a class based on ability have little impact on high and low ability learners, but that "tracking" can have a negative impact on low achievers because of the stigma and low expectations placed on them (Slavin, 1987). More recent research supports Slavin's claims. Hoffer (1992) determined that ability grouping has no benefit in either math or science for students and that in some cases grouping had a negative impact on academic achievement for low groups. Burke and Sass (2011) recommend tracking for high achievers but make a point to indicate that this policy would not be best for low achievers.

Student Variables and Academic Achievement

The purpose of this study was to examine the effects of co-teaching on the academic achievement of general education students on the New York State Assessment for English Language Arts (ELA) and mathematics in Grades 6-8 at a middle school in a mid/upper socioeconomic school district located in a suburb of New York City. Additionally, the study examined the impact of other student mutable variables such as gender, socioeconomic status, class attendance, and ethnicity on the dependent variable, which was defined as student achievement on the New York State Assessment in ELA and mathematics in Grades 6-8.

The examination of other student variables was necessary because those variables could have an impact on academic achievement, specifically student achievement scores (Hill et al., 2008). An analysis using propensity score matching attempted to isolate the variable of placement in the co-taught inclusive classroom. However, the potential impact of these variables

led to a review of current literature of the impact of gender, socioeconomic status, class attendance, and ethnicity on academic achievement.

Socioeconomic Status

Socioeconomic status has a huge impact on academic achievement (Potter, 2013). Research on the subject goes back to the Coleman Report, which was released during the Civil Rights Era. In that report, research indicated that it was socioeconomic status that was the strongest predictor of academic achievement in students (Coleman et al., 1966). Research on socioeconomic status is either focused on how it affects individual students or how the SES of a school affects student achievement (Michelson, Bottia, & Lambert, 2013). This section references studies addressing both impacts of SES, as both pertain to the study. In conducting research on the topic of SES, the terms *family background* and *social class* were used in past research; both can be used interchangeably with SES (Michelson et al., 2013).

Conducted as part of the Civil Rights Act of 1964, the Coleman Report was a study designed to address the concerns of "the lack of availability of equal educational opportunities for individuals by reason of race, color, religion, or national origin" (Viadero, 2006). The study compiled data from 570,000 students, 60,000 teachers, and 4,000 schools from across the country. The researchers moved beyond the mandate of the federal government and reported not just on the disparities in terms of resources but on what students learned in the classroom (Viadero, 2006).

The report yielded a number of findings that continue to impact educational research and reform today. The study reported that students from low-income backgrounds come into school behind their middle- and high-income peers. Most importantly, as mentioned before, SES was the strongest predictor of academic achievement in students. In addition, the study found that

low-income students who attend school with middle- or high-income students have higher level of academic achievement. The type of peers a student has is almost as important a variable for predicting academic achievement as socioeconomic status (Coleman et al., 1966).

Current research supports the Coleman Report (Mickelson & Bottia, 2010; Michelson, et al., 2013; Reid, 2012; Schwartz, 2012). Schwartz (2012) researched the relationship of housing policy on academic achievement of students living in poverty. The longitudinal study examined Montgomery County's (MD) inclusionary zoning program's impact on the achievement gap from 2001-2007. The program creates "school-based economic integration." In her findings, Schwartz noted that low-income students in low-poverty schools outperformed their peers in high-poverty schools in both reading and math. In addition, she stated that as the percentage of students living in poverty (as measured by free and reduced lunch) increased, academic achievement decreased. One of the most significant findings from the research was that students who entered elementary school as academic equals were "set on two different academic trajectories over the course of elementary school" (p. 43). The study also determined that low-income students, often behind their middle and high-income peers academically, were able to close the academic gap by attending low-poverty schools because of the inclusionary zoning program (Schwartz, 2012). Overall, Schwartz' study indicates that socioeconomic status has a significant impact on academic achievement and that economic integration is a more powerful method to close the achievement gap between rich and poor as compared to other school-based reforms.

Ethnicity

Ethnicity is another variable often linked with academic achievement gaps. While some research, including the Coleman Report (1966), minimize the significance of ethnicity as

compared to socioeconomic status, research indicates that there is a relationship between both the ethnic composition of a school, as well as ethnicity of individual students, and academic achievement.

The Coleman Report itself made reference to the achievement gap between Blacks and Whites. According to the Report, not only did a gap exist between minorities and their White peers, but the gap increased as students moved from Grades 6 to12 (Coleman et al., 1966).

In a 2013 metaregression analysis, Michelson et al. (2013) examined the effects of school racial composition on K-12 mathematics outcomes. The quantitative metaregression analysis included 25 studies published within 20 years of the study. The researchers found that overall, there was a small but statistically significant negative relationship between school racial segregation and achievement in mathematics for all grade levels. In examining assessment scores for Grades 4, 8, and 12 National Assessment of Educational Progress (NAEP) of individual students, there was an achievement gap in mathematics between Whites and minorities. This gap increased as students moved from grade level to grade level, although different ethnic groups varied. Between Grades 4-12, the gap between Whites and Blacks increased by 11 points, Whites and Asians by 8 points, and Whites and Latinos by 10 points. All minority groups had a decrease in student proficiency as students moved up to the upper grade levels. The researchers do indicate that the achievement gap for minorities in mathematics has narrowed over the past 40 years, but it has remained stagnant of late (Mickelson et al., 2013).

Gender

Gender is another student variable commonly explored when analyzing variables related to student achievement. Empirical studies show mixed results in an achievement gap between boys and girls (Cheema & Galluzzo, 2013). The Trends in International Mathematics and

Science Study (TIMSS), which takes place every four years, has shown a significant gender achievement gap on some assessments, the 2003 version for fourth and eighth graders and the 2007 version for fourth graders. However, other versions have shown no significant gender gap. The Program for International Student Assessment (PISA) has been used to measure for a gender gap in mathematics (Ma, 2008). The result indicates there was no statistical significance in achievement scores for math between girls and boys in the United States.

Of the studies that indicate that there is a gender achievement gap, many, like the TIMSS, do not control for student and school variables. Marks (2008) found that no gender achievement gap existed when conducting a multiple regression analysis using the PISA data and controlling for student and school variables. However, when conducting the study without controlling for the variables, he found that there was a significant gender achievement gap. As a result, we should be cautious about accepting findings regarding gender and academic achievement that do not account for student and school variables.

Class Attendance

The relationship between the variable of school attendance and academic achievement has also been well-researched. Researchers have examined attendance and academic achievement from Grades K-12. Research shows that students who have high absentee rates score lower on high-stakes state assessments than their peers with regular attendance rates (Hinz et al., 2003; Alanis, 2000). In addition, students with high attendance rates tend to score better than their peers (Lamdin, 1996). This includes higher scores for students on reading and mathematics in high-poverty school districts (Lamdin, 1996).

Recent studies continue to show this trend. Parke and Kanyongo (2012) examined the impact of attendance and mobility on student achievement in mathematics in Grades 1-12. The

study looked at over 32,000 from one school district. The state math assessments was used to measure academic achievement. A two-factor ANOVA was used to determine the correlation between class attendance and academic achievement. The study indicated that low attendance and mobility have a negative impact on academic achievement in mathematics. It also showed that different ethnic subgroups showed similar trends with regard to attendance and achievement (Parke & Kanyongo, 2012).

Propensity Score Matching

In this study, an analysis of the relationship of the independent variable, placement in a co-taught inclusive classroom on the dependent variable, academic achievement was analyzed.

In order to best determine this relationship, random assignment into the treatment and control groups should be used. However, as with most cases in educational research, non-experimental research must be used because it is unethical to use random assignment (Adelson, 2013). In this case, the student population in the study was placed in co-taught inclusive classrooms or general education classrooms prior to the study. This lack of randomization could be biased. Oftentimes it is the parent, student, or administrator that determines the classroom placement of a student (Adelson, 2013). These decisions are often made because of certain student variables, meaning the treatment is not independent of these student variables. As a result, when conducting research of this type, analytical tools are required to adjust for bias.

To alleviate this potential selection bias, propensity score matching (PSM) was utilized to provide a more robust sampling technique. Propensity score matching pairs like students in the sample population from the control and experimental groups. The matched pairs method used in PSM is also known as “nearest neighbor matching” (Stone & Tang, 2013). In order to complete “nearest neighbor matching,” a propensity score must be calculated. “A propensity score is a

single summary score that represents the relationship between multiple observed characteristics for group members and treatment group members" (Stone & Tang, 2013).

Students are paired based on similarity of observable characteristics (Dehejia and Wahba, 2002). In this case of this study, the mutable variables, gender, socioeconomic status, class attendance, ethnicity, and past academic performance were used for the propensity score. According to Dehejia and Wahba (2002), matching "units" (in this case students) "provide a natural weighting scheme that yields unbiased estimates of the treatment impact" (p. 151). By creating a single summary score from a number of covariates, propensity scores lead to more stable results (Adelson, 2013).

PSM helps the research obtain quasi-randomization by matching individuals in the control group to the experimental group by their propensity score (Adelson, 2013). By matching control cases with treatment cases in a study, the researcher can reduce bias and strengthen arguments involving causation (Randolph et al., 2014).

Summary

There is a considerable body of literature on the impact of inclusion on academic achievement of general education students (Daniel & King 1997; Brewton, 2005; Brady, 2010; Robinson & Babo, 2014). In most cases, the research indicates that placement in an inclusive classroom has no statistical significance on academic achievement. Some of this research pertained specifically to the middle school level (Brewton, 2005; Brady, 2010; Robinson & Babo, 2014). Research also exists on the effects of the co-taught inclusive model on academic achievement of general education students at the elementary level (Harrison, 2011; Trabucco, 2011; Laffitt, 2012) and high school level (McLeod, 2007). However, research is unclear on the impact placement in a co-taught inclusive classroom has on general education students at the

middle school level. This study could add to the existing research. Chapter III presents a detailed view of the methodology of this study.

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to examine the influence of placement in a co-taught inclusive classroom on the academic achievement of general education students on the 2014 New York State Assessment for English Language Arts (ELA) and Mathematics in Grades 6-8 at a middle school in a mid/upper socioeconomic school district located in a suburb of New York City. Additionally, the study examined the impact of other student mutable variables such as gender, socioeconomic status, class attendance, ethnicity, and past academic performance on the dependent variable, which will be defined as student achievement on the 2014 New York State Assessments in ELA and Mathematics in Grades 6-8.

By focusing on the possible influence of the co-taught inclusive model as well as other variables, this study aimed to produce research-based evidence to assist in determining if the co-taught inclusive model might influence the performance of general education students. The study could add to the limited research that exists regarding the co-taught inclusive classroom's impact on general education students at the middle school level, which could lead to further research in the area.

Research Questions

The following research questions guided this study:

Research Question 1: What influence, if any, does placement in a co-taught inclusive classroom have on Grades 6-8 general education students' ELA achievement as measured by the 2014 New York State ELA Assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Research Question 2: What influence, if any, does placement in a co-taught inclusive classroom have on Grades 6-8 general education students' mathematics achievement as measured by the 2014 New York State Mathematics Assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Research Question 3: What is the probability of a Grades 6-8 general education student passing the 2014 New York State ELA Assessment based on placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Research Question 4: What is the probability of a Grades 6-8 general education student passing the 2014 New York State Mathematics Assessment based on placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Research Question 5: What, if any, type of interaction exists between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' ELA achievement as measured by the 2014 New York State Assessment when controlling for past academic performance?

Research Question 6: What, if any, type of interaction exists between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' Mathematics achievement as measured by the 2014 New York State Assessment when controlling for past academic performance?

Null Hypotheses

Null Hypothesis 1: There is no statistically significant relationship between placement in a co-taught inclusive classroom and a general education student's academic achievement in

Grades 6-8 on the 2014 New York State ELA Assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Null Hypothesis 2: There is no statistically significant relationship between placement in a co-taught inclusive classroom and a general education student's academic achievement in Grades 6-8 on the 2014 New York State Mathematics Assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Null Hypothesis 3: There is no statistically significant difference in the probability of a Grades 6-8 general education student passing the 2014 New York State ELA Assessment due to placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Null Hypothesis 4: There is no statistically significant difference in the probability of a Grades 6-8 general education student passing the 2014 New York State Mathematics Assessment due to placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Null Hypothesis 5: There is no statistically significant interaction between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' ELA achievement as measured by the 2014 New York State ELA Assessment when controlling for past academic performance.

Null Hypothesis 6: There is no statistically significant interaction between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' mathematics achievement as measured by the 2014 New York State Mathematics Assessment when controlling for past academic performance.

Research Design

Technically, this was a relational, non-experimental, explanatory research design study. This was due to the inability to randomize the experiment. In this case, the student population in the study was placed in co-taught inclusive classrooms or general education classrooms prior to the study. I was not able to ensure that these students were randomly placed. As a result, the relationship between the treatment group, general education students in a general education setting, and the experimental group, general education students in a co-taught inclusive classroom, could be biased. This was assumed because some of the students or their parents could have self-selected either the general or co-taught inclusive classroom settings, and/or building leadership could have made a systematic judgment in selecting students for these differentiated placements.

To alleviate this potential selection bias, propensity score matching was utilized to provide a balanced sampling technique. Propensity score matching pairs like students in the sample population from the control and experimental groups. These students are paired based on similarity of observable characteristics (Dehejia & Wahba, 2002); in this case, the mutable variables, gender, socioeconomic status, class attendance, ethnicity, and past academic performance. According to Dehejia and Wahba (2002), matching "units," in this case students, "provide a natural weighting scheme that yields unbiased estimates of the treatment impact" (p. 151).

In conjunction with propensity score matching for selecting an unbiased, overall sample, multiple regression analysis, logistical regression analysis, and factorial ANCOVA were used to answer the research questions previously posited.

Chapter 2 discussed a number of variables that affect student achievement. The relationship between these variables and student performance on the New York State Assessment for ELA and Mathematics is unknown. However, past research indicates that variables such as socioeconomic status (Coleman et al., 1966; Michelson & Bottia, 2010; Schwartz, 2012), ethnicity (Coleman et al., 1966, Michelson et al., 2013), gender (Cheema & Galluzzo, 2013), and class attendance (Lamdin, 1996; Alanis, 2000; Hinz et al., 2003; Parke & Kanyongo, 2012) impact student achievement. According to Leech, Morgan, and Barrett (2008), "Researchers use simultaneous regression when they have a limited number of predictors and are unsure of which variables would create the best prediction equation model" (p. 94).

Logistic regression is "useful when you want to predict an outcome or dependent variable from a set of predictor variables" (Leech et al., 2008, p. 114). A logistic regression analysis was used in order to determine the probability of a Grades 6-8 general education student passing either the ELA or Mathematics NYS Assessment when placed in a co-taught inclusive classroom or a general education classroom and including student variables gender, socioeconomic status, class attendance, ethnicity, and past academic performance. This is a binary logistic regression, as the dependent/outcome variable has two types (pass or fail).

Research indicates that there can be a gender achievement gap at the middle school grade level (Cheema & Galluzzo, 2013). In order to determine what, if any, type of interaction exists between gender and years placed in a co-taught inclusive classroom and academic achievement, a factorial ANCOVA was used. A factorial ANCOVA "is used to adjust or control for differences between the groups based on another, typically interval-level variable" (Leetch et al., 2008, p. 133). In this case, the factorial ANCOVA allowed for the adjustment in assessment scores based on the relationship between year in a co-taught inclusive classroom and

achievement. After the adjustment, a determination of whether not a gender gap for the sample population on the NYS Assessments still exists can be made.

Sample Population/Data Source

Participants in the study were selected from an upper middle class suburban P-12 school district located 25 miles from New York City. According to the U.S. Census Bureau, the district has 84,187 residents, 29,234 households, and 22,186 families. The racial makeup of the town is 73.9% White, 8.3% Hispanic or Latino, 2.6% Black, 10.5% Asian, and 4.7% from other races. The median income for a household was $117,018, the median income for a family was $131,672, and 3.93% of the population and 2.75% of families live in poverty. The median house price is $498,700. In terms of level of education, 90% of the population 25 years or older has a high school diploma, 45.2% have a bachelor's degree or higher, and 20.4% have a graduate degree or higher.

There are over 9,100 students housed in nine elementary schools, one middle school, and two high schools in the district. The students in the sample population are from the middle school, which houses students in Grades 6-8, with approximately 2,100 students total. Each grade has approximately 700 students. The student sample population consisted of 1,537 seventh and eighth grade students enrolled in the school during the 2013-2014 academic school year.

The students used in the study had to meet the following criteria:

- Were in Grade 6, 7, or 8 during the 2013-14 school year
- Were placed in a general education or co-taught inclusive classrooms in ELA and/or mathematics during the 2013-14 school year
- Received a valid score on the New York State ELA and/or Mathematics Assessments

The co-taught inclusive classrooms in the study included one general education teacher and one special education teacher. Similar to the model described by Nichols et al. (2010), the expectation within the middle school used in this study is that both teachers in the co-taught inclusive classroom would share responsibility and accountability for the class. This includes instruction, in which all teachers in the middle school were trained on the various co-teaching strategies that could be implemented, including one teach-one assist, parallel teaching, station teaching, alternative teaching, one teach-one observe, and teaming (Friend et al., 2010).

Instrumentation

The purpose of this study was to examine the influence of placement in the co-taught inclusive classroom setting on the academic achievement of general education students on the New York State ELA/Literacy Language Arts and mathematics in Grades 6-8. Instrumentation for this study consisted of scores from the New York State ELA and mathematics assessments for Grades 6, 7, and 8 in the 2013-14 school year.

New York State ELA and Mathematics Assessments

The New York State ELA and Mathematics Assessments are currently used to measure student proficiency of the new Common Core State Standards (CCSS) for Grades 3-8. These standards were designed to promote the skills necessary to develop learners who are college and career ready (Engage NY, 2014). Students take the assessments each year as a culminating exam for the grade level. The test is measured using a performance index (PI) calculation, in which the students can achieve four levels:

- Level 1- Basic
- Level 2- Basic Proficient
- Level 3- Proficient

- Level 4- Advanced

In addition to measuring student proficiency of the CCSS, the scores also measure the growth and performance of individual schools, school districts, and, under the new Annual Professional Performance Plan (APPR), teachers. Great emphasis is placed on scores of 3 and 4, which are considered meeting proficiency.

Students who do not meet proficiency are required to receive academic services in the area of need. Schools that have a certain percentage of students that do not meet proficiency can fail to meet Annual Yearly Progress (AYP) and be deemed "a school in need of improvement" (Traum, 2011).

Student scores make up a portion of a teacher's APPR. The student scores, along with scores from classroom observations and administrator evaluations are used for a final APPR grade. Teachers who fall below a certain grade are subject to a performance plan.

Reliability

"Test reliability is directly related to score stability and standard error and, as such, is an essential element of fairness and validity" (NYSED, 2013, p. 77). According to Nunnally (1967), reliability is defined as "the extent to which measurements are repeatable and that random influence which tends to make measurements different from occasion to occasion is a source of measurement error" (p. 206). The reliability of the Grades 3-8 New York State ELA and Mathematics assessments was calculated using Cronbach's alpha (Cronbach, 1951) and Feldt-Raju coefficient (Qualls, 1995).

Cronbach's alpha is a coefficient of reliability. It is often used to measure reliability in psychometric tests, like the New York State Assessment. Cronbach's alpha measures internal consistency, which is the consistency of items on a test measuring the same standard to produce

similar scores. It is one of the most used and most important statistics in the development of tests (Cortina, 1993).

Feldt-Raju is also a reliability coefficient that measures internal consistency. Response data from the examinees, in this case the students answers on the New York State Assessment, are used to compute the reliability coefficient.

"Reliability coefficients provide measures of internal consistency that range from zero to one. High reliability indicates that scores are consistent and not unduly influenced by random error" (NYSED, 2013, p. 77). Reliability scores at or above .90 are considered to have high reliability and internal consistency (Reinard, 2006). For the New York State Assessments in ELA and Mathematics, all tests given in grades 3-8 had reliabilities at or above .90, a good indication that the tests are acceptable as reliable (NYSED, 2013). The table below includes Cronbach's alpha and Feldt-Raju reliability coefficients for the New York State ELA and Mathematics Assessments.

Table 1

Cronbach's alpha and Feldt-Raju for the New York State ELA and Mathematics Assessments

Assessment	Grade	Cronbach's Alpha	Feldt-Raju Coefficient
ELA	3	.90	.91
ELA	4	.90	.91
ELA	5	.91	.92
ELA	6	.92	.92
ELA	7	.91	.92.
ELA	8	.91	.91
Mathematics	3	.93	.94
Mathematics	4	.93	.94
Mathematics	5	.93	.94
Mathematics	6	.94	.94
Mathematics	7	.93	.94
Mathematics	8	.93	.94

Validity

According to the NYSED, "Validity refers to the degree to which evidence and theory supports the interpretations of test scores by the proposed uses of tests" (NYSED, 2013, p.17). In order to determine validity, both the content and the scores produced by the test must be analyzed. The "content" and "construct" are crucial in test evaluation. According to the NYSED,

> Validity is the most important consideration in test evaluation. The concept refers to the appropriateness, meaningfulness, and usefulness of the specific inferences made from test scores. Test validation is the process for accumulating evidence to support any particular inference. Validity, however, is a unitary concept. Although evidence may be accumulated in many ways, validity refers to the degree to which evidence supports inferences made from test scores" (NYSED, 2013, p. 17).

Content validity refers to how well the test or assessment measures the defined standards used to measure student level outcomes. The New York State Assessment in ELA measures student performance with the New York State Common Core ELA Learning Standards. The New York State Assessment in Mathematics measures student performance with the New York State Mathematics Standards.

To determine content validity, the Human Resources Research Organization (HumRRO) conducted an external evaluation. HumRRO found that the 2013 New York State Common Core Assessments for Grades 3-8 assessed the content described by the CCLS and that the assessments also measured the appropriate depth of knowledge.

Construct validity is the analysis of scores to determine their meaning and what kind of inferences they support (NYSED, 2013). Multiple forms of evidence were used to assess the construct validity of the New York State Assessments in ELA and Mathematics.

One form of evidence to measure construct validity is internal consistency. High internal consistency demonstrates high validity because it shows that test items are measuring the same domain of skill (NYSED, 2013, p. 18). Reliability coefficients, the statistics used to measure internal consistency were at .90 or above for each test in ELA and Mathematics, Grades 3-8.

The assessments were also analyzed using Item Response Theory (IRT). According to NYSED, "The majority of the items demonstrated sound fit across grades and subjects" and "provides solid evidence for the appropriateness of the IRT models used to calibrate and scale the test data" (p.18).

To determine if the assessment had effectively minimized item bias, statistical methods were utilized, including analyzing differential item functioning (DIF). It was determined that the magnitude for DIF was small for most items. For those items where the DIF was statistically significant, the item was reviewed and deemed free of bias by the reviewers.

Data Collection

Following a letter of request (see Appendix A), permission was granted via a permission letter (see Appendix B) to me as the researcher to use all the requested sources of information by the district's superintendent of schools. All data were collected by the district and building data coordinators, then placed in an Excel spreadsheet and given to me. Student names were deleted from the data files and assigned numbers in order to maintain anonymity and confidentiality. Each student report contained the following information: New York State Assessments Scores for ELA and/or Mathematics for 2012-2013 (past academic performance), New York State Assessments Scores for ELA and/or Mathematics for 2013-2014, gender, socioeconomic status (eligibility for free or reduced lunch), class attendance, ethnicity, placement in a co-taught inclusive or general education classroom for ELA and/or mathematics. Students missing any section of the report were excluded from the study.

Data Analysis

Propensity score matching provided the eventual sample. Multiple regression analysis, logistic regression analysis, and factorial ANCOVA were also used for this study. All collected

data were entered in SPSS. The independent variables, score on the 2013 New York State Assessments Scores for ELA and Mathematics (past academic performance), gender, socioeconomic status (eligibility for free and reduced lunch), class attendance, ethnicity, placement in a co-taught or general education classroom for ELA and/or mathematics were inputted, and the dependent variable, score on the 2014 New York State Assessments for ELA and/or Mathematics was inputted.

To prevent bias because of an inability to have randomized subjects, a propensity score matching model was created for general education students in a general education placement and general education students in a co-taught inclusive placement. The model was built using the independent variables: gender, SES, class attendance, ethnicity, and past academic performance.

Simultaneous multiple regressions were run to answer the first and second research questions. The purpose was to determine the amount of influence the independent variables, gender, SES, attendance, past performance, and placement in a co-taught inclusive ELA or mathematics classroom, had on Grades 6-8 students' performance on the 2014 New York State ELA or Mathematics Assessments.

For both Research Questions 1 and 2, given the results produced by the simultaneous multiple regression model, more information was needed in order to determine the impact of each of the variables. Hierarchical multiple regression was utilized by the researcher to enter variables in blocks, controlling or eliminating the influence of specific variables.

For Research Questions 3 and 4, binary logistic regressions were used to determine the amount of influence the independent variables, gender, SES, attendance, past performance, and placement in a co-taught inclusive ELA and mathematics classroom had on Grades 6-8 general education students achieving proficiency on the 2014 New York State ELA and Mathematics

Assessments. A binary logistic regression is used when running a regression when the dependent variable is dichotomous (Leech, Barrett, & Morgan, 2011). The dependent variable in this case is proficiency on the 2014 New York State ELA or Mathematics Assessments.

For Research Questions 5 and 6, a factorial ANCOVA was used to determine if there was a significant interaction between gender and placement in a co-taught inclusive classroom. Factorial ANCOVA was used to compare the students based on the two independent variables, gender and placement in a co-taught inclusive classroom, while controlling for past academic performance.

The next chapter contains a report of the results. The final chapter, Chapter 5, includes discussion, implications, and recommendations based on the results.

CHAPTER IV

ANALYSIS OF THE DATA

Introduction

The purpose of this study was to examine the influence of the co-taught inclusive classroom on the academic achievement of general education students on the New York State Assessment for English Language Arts (ELA) and Mathematics in Grades 6-8 at a middle school in a mid/upper socioeconomic school district located in a suburb of New York City. Additionally, the study examined the impact of other student mutable variables such as gender, socioeconomic status, class attendance, past academic performance, and ethnicity on the dependent variable, which was defined as student achievement on the New York State Assessment in ELA and mathematics in Grades 6-8.

Research Questions and Null Hypotheses

Specific, individual SPSS analyses were used to answer the following research questions:

Research Question 1: What influence, if any, does placement in a co-taught inclusive classroom have on general education students' ELA achievement as measured by the New York State Assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Research Question 2: What influence, if any, does placement in a co-taught inclusive classroom have on general education students' math achievement as measured by the New York State Assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Research Question 3: What is the probability of a Grades 6-8 general education student passing the New York State ELA Assessment based on placement in a co-taught inclusive

classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Research Question 4: What is the probability of a Grades 6-8 general education student passing the New York State Mathematics Assessment based on placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Research Question 5: What, if any, type of interaction exists between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' ELA achievement as measured by the New York State Assessment when controlling for past academic performance?

Research Question 6: What, if any, type of interaction exists between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' Mathematics achievement as measured by the New York State Assessment when controlling for past academic performance?

Null Hypothesis 1: There is no statistically significant relationship between placement in a co-taught inclusive classroom and a general education student's academic achievement in Grades 6-8 on the New York State ELA assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Null Hypothesis 2: There is no statistically significant relationship between placement in a co-taught inclusive classroom and a general education student's academic achievement in Grades 6-8 on the New York State Math assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Null Hypothesis 3: There is no statistically significant difference in the probability of a Grades 6-8 general education student passing the New York State ELA Assessment due to placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Null Hypothesis 4: There is no statistically significant difference in the probability of a Grades 6-8 general education student passing the New York State Mathematics Assessment due to placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Null Hypothesis 5: There is no statistically significant interaction between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' ELA achievement as measured by the New York State Assessment when controlling for past academic performance.

Null Hypothesis 6: There is no statistically significant interaction between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' mathematics achievement as measured by the New York State Assessment when controlling for past academic performance.

Results

In the original sample, a total of 2,438 students from Grades 6-8 were included. After eliminating students with missing assessment scores or demographic data, a total of 1,402 students were remaining in the sample. The independent variables included were gender, SES, ethnicity, attendance, past academic performance as measured by scaled scores on the 2013 New York State Assessments in ELA and Mathematics, placement in a co-taught inclusive English or math classroom setting, and number of years in a co-taught inclusive English or math classroom

setting. Coding for these variables is provided in Table 2. The sample consisted of 708 males and 694 females. One hundred twenty six students received free or reduced lunch, while 1,276 students did not receive free or reduced lunch in the sample. One thousand one students in the sample were White, while 401 were non-White. The mean number of days absent was 4.04, with a standard deviation of 6.842. The mean scaled score on the 2013 New York State ELA Assessment was 317.78, with a standard deviation of 30.100. The mean scaled score on the 2013 New York State Mathematics Assessment was 310.49, with a standard deviation of 33.49. Each scaled score is associated with a performance level. Performance levels range from 1-4. Performance levels of 3 or 4 are considered proficient or above. Performance levels of 1 or 2 are considered partially proficient or below proficient. In this data set, students below a performance level of 3 are considered not meeting proficiency. The scaled score range for each performance level differs by grade.

One thousand two hundred thirty students were in a general education classroom setting for ELA during the 2013-14 school year, while 172 students were in a co-taught inclusive classroom for ELA for the 2013-14 school year. For number of years in a co-taught inclusive classroom for ELA, 1,151 students in the sample were never in a co-taught inclusive classroom for ELA, 230 students in the sample were in a co-taught inclusive classroom for ELA for one year, and 21 students were in a co-taught inclusive classroom for ELA for two years.

One thousand two hundred fifty students were in a general education classroom setting for math during the 2013-14 school year, while 152 were in a co-taught inclusive classroom for math during the 2013-14 school year. For number of years in a co-taught inclusive classroom for math, 1,188 students in the sample were never in a co-taught inclusive classroom for math, 171

students in the sample were in a co-taught inclusive classroom for math for one year, and 43 students were in a co-taught inclusive classroom for math for two years.

Table 2

Coding for SPSS Analyses

ELL	Nominal	0= Not Ell 1= ELL
Proficiency ELA 13-14	Nominal	0= No 1= Yes
ELA 13-14 Level	Scale	Scores Indicated
ELA 13-14 Score	Scale	Scores Indicated
New Cut Score Proficiency ELA 13-14	Nominal	0= No 1= Yes
Proficiency ELA 12-13	Nominal	0= No 1= Yes
ELA 12-13 Level	Scale	Scores Indicated
ELA 12-13 Score	Scale	Scores Indicated
New Cut Score Proficiency ELA 12-13	Nominal	0= No 1= Yes
Inclusion ELA 13-14	Nominal	0= No 1= Yes
Inclusion ELA 12-13	Nominal	0= No 1= Yes
Honors English	Nominal	0= No 1= Yes
Inclusion Years ELA	Scale	Number Indicated
Proficiency Math 13-14	Nominal	0= No 1= Yes
Math 13-14 Level	Scale	Scores Indicated
Math 13-14 Score	Scale	Scores Indicated
New Cut Score Proficiency Math 13-14	Nominal	0= No 1= Yes
Proficiency Math 12-13	Nominal	0= No 1= Yes
Math 12-13 Level	Scale	Scores Indicated
Math 12-13 Score	Scale	Scores Indicated
New Cut Score Proficiency Math 12-13	Nominal	0= No 1= Yes
Inclusion Math	Nominal	0= No 1= Yes
Honors Math	Nominal	0= No 1= Yes
Inclusion Years Math	Scale	Number Indicated

Table 3

Descriptive Statistics of Whole Sample

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Gender	1402	0	1	.50	.500
SES	1402	0	1	.09	.286
Attendance- 13-14	1402	0	75	4.04	6.842
Ethnicity	1402	0	5	.51	.923
ELA 12-13 Score	1402	99	417	317.78	30.100
Inclusion ELA 13-14	1402	0	1	.12	.328
Inclusion Years ELA	1402	0	2	.19	.432
Math 12-13 Score	1402	99	398	310.49	33.487
Inclusion Math 13-14	1402	0	1	.11	.311
Inclusion Years Math	1402	0	2	.18	.460
Valid N (listwise)	1402				

The final sample for statistical analysis was obtained through the use of propensity score matching (PSM). Propensity score matching pairs like students in the sample population from the control and experimental groups. The matched pairs method used in PSM is also known as "nearest neighbor matching" (Stone & Tang, 2013). In order to complete "nearest neighbor matching," a propensity score must be calculated. "A propensity score is a single summary score that represents the relationship between multiple observed characteristics for group members and treatment group members" (Stone & Tang, 2013).

Students are paired based on similarity of observable characteristics (Dehejia & Wahba, 2002). In the case of this study, the mutable variables, gender, socioeconomic status, class attendance, ethnicity, and past academic performance, were used for the propensity score.

According to Dehejia and Wahba (2002), matching "units," in this case students, "provide a natural weighting scheme that yields unbiased estimates of the treatment impact" (p. 151). By creating a single summary score from a number of covariates, propensity scores lead to more stable results (Adelson, 2013).

In order to best determine this relationship, random assignment into the treatment and control groups should be used. However, as with most cases in educational research, non-experimental research must be used because it is unethical to use random assignment (Adelson, 2013). In this case, the student population in the study was placed in co-taught inclusive classrooms or general education classrooms prior to the study. PSM is used to reduce selection bias, allowing for the comparison of groups as if the selection of the sample were randomized.

Propensity score matching for this sample was done using "R," which is "a language for statistical computing and graphics" (R Core Team, 2014). All student data were collected, entered into Excel, and properly dummy-coded. The Excel file was then loaded into "MatchIt" via R, where a one-to-one PSM was computed in "optmatch" (Ho, Imai, King, & Stuart, 2011). The results of the PSM analyses construction appear in Appendix C.

After PSM, a total of 413 students were included in the sample from Grades 6-8 for ELA. Seven independent variables, gender, SES, attendance, ethnicity, past academic performance, placement in a co-taught inclusive ELA classroom setting, and number of years placed in a co-taught inclusive ELA classroom setting, were included in the PSM calculations. Two hundred fourteen males and 199 females were included in the PSM sample. Twenty-five students received free or reduced lunch, while 388 students in the sample did not receive free or reduced lunch. Two hundred eighty-eight students in the sample were White, while 125 were non-White. The mean number of days absent was 4.71, with a standard deviation of 7.922. The mean scaled

score on the 2013 New York State ELA Assessment was 318.76, with a standard deviation of 21.161. Two hundred six students were in a general education classroom setting for ELA during the 2013-2014 school year, while 207 students were in a co-taught inclusive classroom for ELA for the 2013-2014 school year. For number of years in a co-taught inclusive classroom for ELA, 205 students in the sample were never in a co-taught inclusive classroom for ELA, 188 students in the sample were in a co-taught inclusive classroom for ELA for one year, and 20 students were in a co-taught inclusive classroom for ELA for two years.

Table 4

Descriptive Statistics of ELA Sample After PSM Calculations

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
gender	413	0	1	.48	.500
ses	413	0	1	.06	.239
attendance	413	0	61	4.71	7.922
ethnicity	413	0	4	.56	.972
ela_12_13	413	262	404	318.76	21.161
Inclusion#Years#ELA	413	0	2	.55	.587
incela	413	0	1	.50	.501
Valid N (listwise)	413				

For math, after PSM, a total of 333 students were included in the sample from grades 6-8. Seven independent variables, gender, SES, attendance, ethnicity, past academic performance, placement in a co-taught inclusive math classroom setting, and number of years placed in a co-taught inclusive math classroom setting, were included in the PSM calculations. One hundred sixty-six males and 167 females were included in the PSM sample. Fifty students received free

or reduced lunch, while 283 students in the sample did not receive free or reduced lunch. One hundred ninety-five in the sample were White, while 138 were non-White. The mean number of days absent was 4.30, with a standard deviation of 7.430. The mean scaled score on the 2013 New York State Mathematics Assessment was 299.91, with a standard deviation of 19.175. One hundred sixty-seven students were in a general education classroom setting for math during the 2013-2014 school year, while 166 students were in a co-taught inclusive classroom for math for the 2013-2014 school year. For number of years in a co-taught inclusive classroom for math, 167 students in the sample were never in a co-taught inclusive classroom for math, 126 students in the sample were in a co-taught inclusive classroom for math for one year, and 40 students were in a co-taught inclusive classroom for math for two years.

Table 5

Descriptive Statistics of Math Sample After PSM Calculations

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
gender	333	0	1	.50	.501
ses	333	0	1	.15	.358
attendance	333	0	52	4.30	7.430
ethnicity	333	0	4	.74	1.020
math_12_13	333	219	372	299.91	19.175
incmath	333	0	1	.50	.501
Inclusion#Years#Math	333	0	2	.62	.691
Valid N (listwise)	333				

Research Question 1: Analysis and Results

Research Question 1: What influence, if any, does placement in a co-taught inclusive classroom have on general education students' ELA achievement as measured by the New York State Assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Null Hypothesis 1: There is no statistically significant relationship between placement in a co-taught inclusive classroom and a general education student's academic achievement in Grades 6-8 on the New York State ELA assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

A simultaneous multiple regression was run to answer the first research question. The purpose was to determine the amount of influence the independent variables, gender, SES, attendance, past performance, and placement in a co-taught inclusive ELA classroom had on Grades 6-8 students' performance on the 2014 New York State ELA Assessment.

The model involved 413 students from Grades 6-8. The dependent variable was the 2014 New York State ELA Assessment scaled score for students in Grades 6-8. The adjusted *R* squared for this model indicates that 48.2 % of the variance in student performance on the New York State ELA Assessment for Grades 6-8 can be explained by gender, ethnicity, attendance, SES, placement in a co-taught inclusive classroom for ELA, and past performance on the 2013 New York State ELA Assessment. The regression model (Table 7) was statistically significant, with F=77.565, df=412, p<.001. The Durbin-Watson score was 1.474. This indicates that the residuals of the variables were not related and the assumption for regression was met (see Table 7).

Table 6

Variables Entered/Removed

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	incela, gender, ela_12_13, attendance, ses[b]	.	Enter

a. Dependent Variable: ela_13_14

b. All requested variables entered.

Table 7

Model Summary ELA

Model Summary[b]

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	*F* Change	*df*1	*df*2	Sig. *F* Change	
1	.699[a]	.488	.482	15.718	.488	77.565	5	407	.000	1.474

a. Predictors: (Constant), incela, gender, ela_12_13, attendance, ses

b. Dependent Variable: ela_13_14

Table 8

ANOVA Table for ELA

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	95814.301	5	19162.860	77.565	.000[b]
	Residual	100552.004	407	247.057		
	Total	196366.305	412			

a. Dependent Variable: ela_13_14

b. Predictors: (Constant), incela, gender, ela_12_13, attendance, ses

Examination of the standardized coefficients (Table 9) indicates that there were two statistically significant predictors, incela (placement in a co-taught inclusive classroom for ELA) and ela_12_13 (past performance on the 2013 New York State ELA Assessment). Multicollinearity was not of concern because all predictor variables included in the regression met the tolerance threshold for this model, .528 (<1-R^2) (Leech, Barrett, & Morgan, 2011).

Past performance was a statistically significant predictor of performance on the 2014 New York State ELA Assessments for general education students in Grades 6-8 (β= .675, t=18.964, p<.001). According to the analysis, past performance accounted for 45.6% of the variability in Grades 6-8 student performance on the 2014 New York State ELA Assessment. The positive beta indicates that as student performance on the 2013 New York State ELA Assessments for Grades 6-8 increased, performance on the 2014 New York State ELA assessments for Grades 6-8 increased as well.

Placement in a co-taught inclusive classroom was a statistically significant predictor of student performance on the 2014 New York State ELA Assessment for general education

students in Grades 6-8. According to the analysis, placement in a co-taught inclusive classroom setting contributed to 2.3% of the variance of Grades 6-8 general education students' performance on the 2014 New York State ELA Assessment. The negative beta indicates that Grades 6-8 general education students who were not placed in a co-taught inclusive classroom setting performed higher than general education students who were placed in a co-taught inclusive classroom setting on the 2014 New York State ELA Assessment. The mean scaled score for students not placed in a co-taught inclusive classroom on the 2014 New York State ELA Assessment was 319.66, while the mean score for students placed in the co-taught inclusive classroom was 311.85.

The independent variables of gender, SES, and attendance were not found to be statistically significant predictors of performance on the 2014 New York State ELA Assessment for Grades 6-8, as the *p* values for these variables were greater than .05.

Table 9

Coefficients Table for ELA

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	98.558	11.785		8.363	.000		
	gender	-2.197	1.554	-.050	-1.413	.158	.992	1.008
	ses	-.720	3.261	-.008	-.221	.825	.989	1.011
	attendance	-.074	.098	-.027	-.752	.453	.996	1.004
	ela_12_13	.696	.037	.675	18.964	.000	.993	1.007
	incela	-6.737	1.552	-.154	-4.342	.000	.994	1.006

a. Dependent Variable: ela_13_14

Given the results produced by the simultaneous multiple regression model, more information was needed in order to determine the impact of each of the variables. Hierarchical multiple regression allowed the researcher to enter variables in blocks, controlling or eliminating the influence of specific variables. The hierarchical regression analysis shown below was created with an indication of which predictors had the greatest influence on the dependent variable.

Table 10

Hierarchical Regression Block Inputs, ELA

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	incela[b]	.	Enter
2	gender, ses[b]	.	Enter
3	attendance[b]	.	Enter
4	ela_12_13[b]	.	Enter

a. Dependent Variable: ela_13_14

b. All requested variables entered.

A hierarchical multiple regression analysis was performed to better control for the influence of the control variables on the dependent variable. The purpose was to determine the amount of influence the independent variables, gender, SES, attendance, past performance, and placement in a co-taught inclusive ELA classroom, had on Grades 6-8 students' performance on the New York State ELA Assessment. In this case, a hierarchical regression provided a better

estimate of the influence of the independent variable in question—placement in a co-taught inclusive classroom (incela).

In the hierarchical multiple regression model, the dependent variable was the 2014 New York State ELA Assessment scaled score for students in Grades 6-8. As displayed in Table 10, variables were entered into the regression models as per the following blocks: Model 1, Co-Taught Inclusive ELA; Model 2, Co-Taught Inclusive ELA, Gender, SES; Model 3, Co-Taught Inclusive ELA, Gender, SES, Attendance; Model 4, Co-Taught Inclusive ELA, Gender, SES, Attendance, ela_12_13 (past performance).

Table 11

Model Summary, ELA

Model Summary[e]

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	*F* Change	*df*1	*df*2	Sig. *F* Change	
1	.179[a]	.032	.030	21.505	.032	13.618	1	411	.000	
2	.187[b]	.035	.028	21.527	.003	.575	2	409	.563	
3	.188[c]	.035	.026	21.546	.001	.297	1	408	.586	
4	.699[d]	.488	.482	15.718	.452	359.618	1	407	.000	1.474

a. Predictors: (Constant), incela

b. Predictors: (Constant), incela, gender, ses

c. Predictors: (Constant), incela, gender, ses, attendance

d. Predictors: (Constant), incela, gender, ses, attendance, ela_12_13

e. Dependent Variable: ela_13_14

In examining the model summary, the R^2 change, which explains how much R^2 increases or potentially decreases when one adds new variables, is important. As each block was introduced, the R^2 change illustrated the influence of the variables contained in that block. In Model 1, the R^2 was .032, indicating that incela accounted for 3.2% of the variability, which was deemed statistically significant ($p<.001$). When the additional variables were entered in Model 2, the R^2 change was minimal, .003, and the percentage of variability (adjusted R^2) accounted for changes from .032 (3.2%) to .035 (3.5%) or .3%. This explained a very small percentage of the variance and, more importantly, was not statistically significant, which was confirmed by the Sig. *F* Change statistic ($p>.563$). Similarly, when Model 3 was added, which added attendance, the adjusted R^2 change was .001, which was also not statistically significant ($p>.05$). However, when Model 4 was added, which added past performance (2013 ELA scaled score), there was an R^2 change of .452 (45.2%), and the adjusted R^2 was .482, meaning that 48.2% of the variance was now accounted for when all of the variables were entered into the regression. Subsequently, the Sig *F* Change was statistically significant ($p<.001$).

Table 12

Hierarchical Regression ANOVA Table for ELA

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	6297.734	1	6297.734	13.618	.000[b]
	Residual	190068.571	411	462.454		
	Total	196366.305	412			
2	Regression	6830.475	3	2276.825	4.913	.002[c]
	Residual	189535.830	409	463.413		
	Total	196366.305	412			
3	Regression	6968.213	4	1742.053	3.753	.005[d]
	Residual	189398.092	408	464.211		
	Total	196366.305	412			
4	Regression	95814.301	5	19162.860	77.565	.000[e]
	Residual	100552.004	407	247.057		
	Total	196366.305	412			

a. Dependent Variable: ela_13_14

b. Predictors: (Constant), incela

c. Predictors: (Constant), incela, gender, ses

d. Predictors: (Constant), incela, gender, ses, attendance

e. Predictors: (Constant), incela, gender, ses, attendance, ela_12_13

Table 12 indicates which models were significant. The independent variables entered in Models 1 and 4 were significant predictors (p<.001) of performance on the 2014 New York State ELA Assessments for Grades 6-8 (Model 1: F=13.618, df=411, p<.001; Model 4: F=77.565, df=407, p<.001). All four models were found to be statistically significant.

Table 13

Hierarchical Regression Coefficients Table for ELA

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	*t*	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	319.660	1.498		213.348	.000					
	incela	-7.810	2.116	-.179	-3.690	.000	-.179	-.179	-.179	1.000	1.000
2	(Constant)	320.205	1.809		177.040	.000					
	incela	-7.688	2.122	-.176	-3.624	.000	-.179	-.176	-.176	.997	1.003
	gender	-.697	2.124	-.016	-.328	.743	-.023	-.016	-.016	.996	1.004
	ses	-4.453	4.455	-.049	-1.000	.318	-.059	-.049	-.049	.994	1.006
3	(Constant)	320.505	1.892		169.390	.000					
	incela	-7.634	2.126	-.175	-3.591	.000	-.179	-.175	-.175	.995	1.005
	gender	-.652	2.128	-.015	-.306	.760	-.023	-.015	-.015	.995	1.006
	ses	-4.526	4.461	-.050	-1.015	.311	-.059	-.050	-.049	.993	1.007
	attendance	-.073	.134	-.027	-.545	.586	-.034	-.027	-.026	.996	1.004
4	(Constant)	98.558	11.785		8.363	.000					
	incela	-6.737	1.552	-.154	-4.342	.000	-.179	-.210	-.154	.994	1.006
	gender	-2.197	1.554	-.050	-1.413	.158	-.023	-.070	-.050	.992	1.008
	ses	-.720	3.261	-.008	-.221	.825	-.059	-.011	-.008	.989	1.011
	attendance	-.074	.098	-.027	-.752	.453	-.034	-.037	-.027	.996	1.004
	ela_12_13	.696	.037	.675	18.964	.000	.678	.685	.673	.993	1.007

a. Dependent Variable: ela_13_14

The coefficients table provides a detailed analysis of the strength of each individual independent variable. In Model 1, the independent variable of incela was statistically significant,

$p<.001$ with $t=-3.690$ and a $\beta= -.179$. The independent variable, placement in a co-taught inclusive classroom, had a significant but small effect on the dependent variable. Since the beta was negative, this indicates that Grades 6-8 general education students who were placed in a non-co-taught inclusive classroom setting performed higher than general education students who were placed in a co-taught inclusive classroom setting on the 2014 New York State ELA Assessment. Placement in the co-taught inclusive classroom contributed to 3.2% of the overall variance in the New York State ELA Assessment performance for this model. In terms of scaled score, the mean scaled score for students not placed in a co-taught inclusive classroom on the 2014 New York State ELA Assessment was 319.66, while the mean score for students placed in the co-taught inclusive classroom was 311.85.

Adding the independent variables of gender and SES in Model 2 increased the strength by only .003, meaning that these variables had a minimal effect on incela (.-179 vs. -.176). These independent variables were not statistically significant; gender ($p=.743$), ses ($p_{=.}318$).

In Model 3, attendance was not found to be statistically significant ($p>.05$). In addition, attendance had little impact on placement in the co-taught inclusive classroom.

Adding past performance (ela_12_13) in Model 4 impacted the other variables. Past performance had a moderate statistical significance ($\beta=.675$, $t=18.964$, $p<.001$) of student performance on the New York State ELA Assessment, contributing 45.6% to the overall variance. This means that general education students who did well on the 2013 New York State ELA Assessment, did well on the 2014 New York State Assessment and vice versa. The variable of incela, or placement in the co-taught inclusive classroom, remained significant but became a weaker predictor of performance ($\beta= -.154$, $t= -4.342$, $p<.001$), now contributing 2.3% of the variance of performance on the New York State ELA Assessment. This indicates that past

performance had a stronger influence than placement in a co-taught inclusive classroom, which possibly reduced the influences of that variable in the model.

The first research question and null hypothesis were as follows:

Research Question 1: What influence, if any, does placement in a co-taught inclusive classroom have on general education students' ELA achievement as measured by the New York State Assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Null Hypothesis 1: There is no statistically significant relationship between placement in a co-taught inclusive classroom and a general education student's academic achievement in Grades 6-8 on the New York State ELA assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Based on the analysis, the null hypothesis for this research question was rejected. Placement in a co-taught inclusive classroom setting for ELA had a statistically significant influence on Grades 6-8 general education students' performance as measured by the 2014 New York State ELA Assessment when controlling for gender, SES, attendance, and past academic performance.

Research Question 2: Analysis and Results

Research Question 2: What influence, if any, does placement in a co-taught inclusive classroom have on general education students' math achievement as measured by the New York State Assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Null Hypothesis 2: There is no statistically significant relationship between placement in a co-taught inclusive classroom and a general education student's academic achievement in

Grades 6-8 on the New York State Math assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

A simultaneous multiple regression was run to answer the second research question. The purpose was to determine the amount of influence the independent variables, gender, SES, attendance, past performance, and placement in a co-taught inclusive math classroom had on Grades 6-8 students' performance on the 2014 New York State Mathematics Assessment.

The model involved 333 students from Grades 6-8. The dependent variable was the 2014 New York State Mathematics Assessment scaled score for students in Grades 6-8. The adjusted *R* squared for this model indicates that 53.9% of the variance in student performance on the New York State Mathematics Assessment for Grades 6-8 can be explained by gender, ethnicity, attendance, SES, placement in a co-taught inclusive classroom for Math, and past performance on the 2013 New York State Mathematics Assessment. The regression model (Table 15) was statistically significant with F=78.632, df=332, p<.001. The Durbin-Watson score was 1.400. This indicates that the residuals of the variables were not related and the assumption for regression was met (see Table 15).

Table 14

Variables Entered/ Removed

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	math_12_13, attendance, gender, ses, incmath[b]	.	Enter

a. Dependent Variable: math_13_14

b. All requested variables entered.

Table 15

Model Summary Mathematics

Model Summary[b]

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	*F* Change	*df*1	*df*2	Sig. *F* Change	
1	.739[a]	.546	.539	14.660	.546	78.632	5	327	.000	1.400

a. Predictors: (Constant), math_12_13, attendance, gender, ses, incmath

b. Dependent Variable: math_13_14

Table 16

ANOVA Table for Mathematics

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	84498.768	5	16899.754	78.632	.000[b]
	Residual	70279.130	327	214.921		
	Total	154777.898	332			

a. Dependent Variable: math_13_14

b. Predictors: (Constant), math_12_13, attendance, gender, ses, incmath

Examination of the standardized coefficient (Table 17) indicates that there were two statistically significant predictors, incmath (placement in a co-taught inclusive classroom for math) and math_12_13 (past academic performance on the 2013 New York State Mathematics Assessment). Multicollinearity was not of concern because all predictor variables included in the regression met the tolerance threshold for this model, .461 (<1-R^2) (Leech, Barrett, & Morgan, 2011).

Past performance was a statistically significant predictor of performance on the 2014 New York State Mathematics Assessments for general education students in Grades 6-8 (β= .671, t=17.194, p<.001). According to the analysis, past performance accounted for 45.0% of the variability in Grades 6-8 student performance on the 2014 New York State ELA Assessment. The positive beta indicates that as student performance on the 2013 New York State Mathematics Assessments for Grades 6-8 increased, performance on the 2014 New York State Mathematics assessments for Grades 6-8 increased as well.

Placement in a co-taught inclusive classroom was a statistically significant predictor of student performance on the 2014 New York State Mathematics Assessment for general education

students in Grades 6-8. According to the analysis, placement in a co-taught inclusive classroom setting contributed to 3.4% of the variance of Grades 6-8 general education students' performance on the 2014 New York State Mathematics Assessment. The negative beta indicates that Grades 6-8 general education students who were not placed in a co-taught inclusive classroom setting performed higher than general education students who were placed in a co-taught inclusive classroom setting on the 2014 New York State Mathematics Assessment. The mean scaled score for students not placed in a co-taught inclusive classroom on the 2014 New York State Mathematics Assessment was 315.52, while the mean score for students placed in the co-taught inclusive classroom was 300.78.

The independent variables of gender, SES, and attendance were not found to be statistically significant predictors of performance on the 2014 New York State Mathematics Assessment for Grades 6-8, as the *p* values for these variables were greater than .05.

Table 17

Coefficients Table for Mathematics

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	84.755	13.577		6.243	.000		
	incmath	-7.939	1.664	-.184	-4.772	.000	.933	1.072
	gender	2.064	1.615	.048	1.278	.202	.990	1.010
	ses	-1.204	2.297	-.020	-.524	.600	.959	1.043
	attendance	-.016	.109	-.005	-.144	.886	.986	1.014
	math_12_13	.756	.044	.671	17.194	.000	.912	1.097

a. Dependent Variable: math_13_14

Given the results produced by the simultaneous multiple regression model, more information was needed in order to determine the impact of each of the variables. The hierarchical regression analysis shown below was created with an indication of what predictors had the greatest influence on the dependent variable.

Table 18

Hierarchical Regression Block Inputs, Math

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	incmath[b]	.	Enter
2	gender, ses[b]	.	Enter
3	attendance[b]	.	Enter
4	math_12_13[b]	.	Enter

a. Dependent Variable: math_13_14

b. All requested variables entered.

A hierarchical multiple regression analysis was performed to better control for the influence of the control variables on the dependent variable. The purpose was to determine the amount of influence the independent variables, gender, SES, attendance, past performance, and placement in a co-taught inclusive math classroom had on Grades 6-8 students' performance on the New York State Mathematics Assessment. In this case, a hierarchical regression provided a better estimate of the influence of the independent variable in question—placement in a co-taught inclusive classroom (incmath).

In the hierarchical multiple regression model, the dependent variable was the 2014 New York State Mathematics Assessment scaled score for students in Grades 6-8. As displayed in Table 18, variables were entered into the regression models as per the following blocks: Model 1, Co-Taught Inclusive Math; Model 2, Co-Taught Inclusive Math, Gender, SES; Model 3, Co-Taught Inclusive Math, Gender, SES, Attendance; Model 4, Co-Taught Inclusive Math, Gender, SES, Attendance, math_12_13 (past academic performance).

Table 19

Model Summary, Mathematics

Model Summary[e]

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	*F* Change	*df*1	*df*2	Sig. *F* Change	
1	.342[a]	.117	.114	20.322	.117	43.784	1	331	.000	
2	.368[b]	.135	.127	20.170	.018	3.508	2	329	.031	
3	.368[c]	.135	.125	20.199	.000	.058	1	328	.810	
4	.739[d]	.546	.539	14.660	.411	295.638	1	327	.000	1.400

a. Predictors: (Constant), incmath

b. Predictors: (Constant), incmath, gender, ses

c. Predictors: (Constant), incmath, gender, ses, attendance

d. Predictors: (Constant), incmath, gender, ses, attendance, math_12_13

e. Dependent Variable: math_13_14

In examining the model summary (Table 19), the R^2 change, which explains how much R^2 increases or potentially decreases when one adds new variables, was of importance. As each block was introduced, the R^2 change illustrated the influence of the variables contained in that block. In Model 1, the R^2 was .117, indicating that incmath accounted for 11.7% of the variability, which was deemed statistically significant ($p<.001$). When the additional variables were entered in Model 2, the R^2 change was minimal, .018, and the percentage of variability (adjusted R^2) accounted for changes from .117 (11.7%) to .135 (13.5%) or 1.8%. This explained a very small percentage of the variance and, more importantly, was not statistically significant, which was confirmed by the Sig. *F* Change statistic ($p>.031$). Similarly, when Model 3 was added, which added attendance, the adjusted R^2 change was .000, which was also not statistically significant ($p>.05$). However, when Model 4 was added, which added past performance (2013

Mathematics scaled score), there was an R^2 change of .411 (41.1%), and the adjusted R^2 was .539, meaning that 53.9% of the variance was now accounted for when all of the variables were entered into the regression. Subsequently, the Sig *F* Change was statistically significant ($p<.001$).

Table 20

Hierarchical Regression ANOVA Table for Mathematics

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	18082.028	1	18082.028	43.784	.000[b]
	Residual	136695.869	331	412.978		
	Total	154777.898	332			
2	Regression	20936.296	3	6978.765	17.155	.000[c]
	Residual	133841.602	329	406.813		
	Total	154777.898	332			
3	Regression	20959.904	4	5239.976	12.844	.000[d]
	Residual	133817.994	328	407.982		
	Total	154777.898	332			
4	Regression	84498.768	5	16899.754	78.632	.000[e]
	Residual	70279.130	327	214.921		
	Total	154777.898	332			

a. Dependent Variable: math_13_14

b. Predictors: (Constant), incmath

c. Predictors: (Constant), incmath, gender, ses

d. Predictors: (Constant), incmath, gender, ses, attendance

e. Predictors: (Constant), incmath, gender, ses, attendance, math_12_13

Table 20 indicates which models were significant. The independent variables entered in Models 1 and 4 were significant predictors ($p<.001$) of performance on the 2014 New York State ELA Assessments for Grades 6-8 (Model 1: $F=43.784$, $df=331$, $p<.001$; Model 4: $F=78.632$, $df=327$, $p<.001$). All four models were found to be statistically significant.

Table 21

Hierarchical Regression Coefficients Table for Mathematics

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	*t*	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	315.521	1.573		200.642	.000					
	incmath	-14.738	2.227	-.342	-6.617	.000	-.342	-.342	-.342	1.000	1.000
2	(Constant)	316.628	1.991		159.029	.000					
	incmath	-15.121	2.215	-.351	-6.825	.000	-.342	-.352	-.350	.996	1.004
	gender	.619	2.211	.014	.280	.780	.016	.015	.014	1.000	1.000
	ses	-8.166	3.101	-.135	-2.634	.009	-.112	-.144	-.135	.996	1.004
3	(Constant)	316.763	2.071		152.934	.000					
	incmath	-15.110	2.219	-.350	-6.809	.000	-.342	-.352	-.350	.995	1.005
	gender	.666	2.222	.015	.300	.765	.016	.017	.015	.992	1.008
	ses	-8.222	3.114	-.136	-2.640	.009	-.112	-.144	-.136	.990	1.010
	attendance	-.036	.150	-.012	-.241	.810	-.009	-.013	-.012	.986	1.014
4	(Constant)	84.755	13.577		6.243	.000					
	incmath	-7.939	1.664	-.184	-4.772	.000	-.342	-.255	-.178	.933	1.072
	gender	2.064	1.615	.048	1.278	.202	.016	.071	.048	.990	1.010
	ses	-1.204	2.297	-.020	-.524	.600	-.112	-.029	-.020	.959	1.043
	attendance	-.016	.109	-.005	-.144	.886	-.009	-.008	-.005	.986	1.014
	math_12_13	.756	.044	.671	17.194	.000	.715	.689	.641	.912	1.097

a. Dependent Variable: math_13_14

The coefficients table (Table 21) provides a detailed analysis of the strength of each individual independent variable. In Model 1, the independent variable of incmath was statistically significant, $p<.001$ with $t=-6.617$ and a $\beta= -.342$. The independent variable, placement in a co-taught inclusive classroom had a significant but small effect on the dependent variable. Since the beta was negative, this indicates that Grades 6-8 general education students who were not placed in a co-taught inclusive classroom setting performed higher than general education students who were placed in a co-taught inclusive classroom setting on the 2014 New York State Mathematics Assessment. Placement in the co-taught inclusive classroom contributed to 11.7% of the overall variance in the New York State Mathematics Assessment performance for this model. The mean scaled score for students not placed in a co-taught inclusive classroom on the 2014 New York State Mathematics Assessment was 315.52, while the mean score for students placed in the co-taught inclusive classroom was 300.78.

Adding the independent variables of gender and SES in Model 2 increased the strength by only .009, meaning that these variables had a minimal effect on incela (.-342 vs. -.351). These independent variables were not statistically significant; gender ($p=.780$), ses ($p_{=}.009$).

In Model 3, attendance was not found to be statistically significant ($p>.05$). In addition, attendance had little impact on placement in the co-taught inclusive classroom.

Adding past performance (math_12_13) in Model 4 impacted the other variables. Past performance had a moderate statistical significance ($\beta=.671$, $t=17.194$, $p<.001$) on student performance on the New York State Mathematics Assessment, contributing 45.0% to the overall variance. This means that general education students who did well on the 2013 New York State Mathematics Assessment did well on the 2014 New York State Mathematics Assessment and vice versa. The variable of incmath, or placement in the co-taught inclusive classroom, remained

significant but became a weaker predictor of performance (β= -.184, *t*= -6.617, *p*<.001), now contributing 3.4% of the variance of performance on the New York State Mathematics Assessment. This indicates that past academic performance had a stronger influence than placement in a co-taught inclusive classroom, which possibly reduced the influences of that variable in the model.

The second research question and null hypothesis were as follows:

Research Question 2: What influence, if any, does placement in a co-taught inclusive classroom have on general education students' math achievement as measured by the New York State Assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Null Hypothesis 2: There is no statistically significant relationship between placement in a co-taught inclusive classroom and a general education student's academic achievement in Grades 6-8 on the New York State Math assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Based on the analysis, the null hypothesis for this research question was rejected. Placement in a co-taught inclusive classroom setting for math had a statistically significant influence on Grades 6-8 general education students' performance as measured by the 2014 New York State Mathematics Assessment when controlling for gender, SES, attendance, and past academic performance.

Research Question 3: Analysis and Results

Research Question 3: What is the probability of a Grades 6-8 general education student passing the New York State ELA Assessment based on placement in a co-taught inclusive

classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Null Hypothesis 3: There is no statistically significant difference in the probability of a Grades 6-8 general education student passing the New York State ELA Assessment due to placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

The purpose of Research Question 3 was to determine the amount of influence the independent variables, gender, SES, attendance, past performance, and placement in a co-taught inclusive ELA classroom, had on Grades 6-8 general education students achieving proficiency on the 2014 New York State ELA Assessment. A binary logistic regression was conducted to answer the third research question. A binary logistic regression is used when running a regression when the dependent variable is dichotomous (Leech, Barrett, & Morgan, 2011). The dependent variable in this case was proficiency on the 2014 New York State ELA Assessment. The dependent variable was dichotomous (0= not proficient, 1= proficient). Independent variables were coded as follows: placement in a co-taught inclusive classroom (0= general ed classroom, 1= co-taught inclusive classroom), gender (0=male, 1=female), SES (0= no free or reduced lunch, 1=free or reduced lunch), attendance (scaled), past performance (scaled score from 2013 New York State ELA Assessment.

Multicollinearity occurs when two or more independent variables have high intercorrelations. Because these independent variables contain the same information, they can lead to misleading and/or inaccurate results (Leech, Barrett, & Morgan, 2011). To address the potential issues of multicollinearity, independent variables were analyzed using a correlation

matrix (see Table 22). High correlations on the correlation matrix would indicate a problem with multicollinearity. However, the chart did not contain any high correlations.

Table 22

Correlations Matrix: Proficiency on 2014 New York State ELA Assessment

Correlation Matrix

		Constant	incela(1)	gender	ses	attendance	ela_12_13
Step 1	Constant	1.000	-.410	.044	-.040	.018	-.997
	incela(1)	-.410	1.000	-.024	.022	.034	.373
	gender	.044	-.024	1.000	-.092	.033	-.084
	ses	-.040	.022	-.092	1.000	.050	.031
	attendance	.018	.034	.033	.050	1.000	-.047
	ela_12_13	-.997	.373	-.084	.031	-.047	1.000

To rule out collinearity, the tolerance value for each independent variable must be greater than 1-R^2 (Leech, Barrett, & Morgan, 2011). Of the independent variables in the group, none had this issue, eliminating multicollinearity as a concern (see Table 23). In addition, simultaneous and hierarchical regressions previously run using the same independent variables did not indicate multicollinearity. As a result, multicollinearity was not an issue.

Table 23

Collinearity Statistics: Proficiency on 2014 New York State ELA Assessment

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	*t*	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-3.483	.297		-11.732	.000					
	incela	-.259	.039	-.259	-6.627	.000	-.279	-.312	-.258	.994	1.006
	gender	-.046	.039	-.046	-1.165	.245	-.026	-.058	-.045	.992	1.008
	ses	-.021	.082	-.010	-.256	.798	-.059	-.013	-.010	.989	1.011
	attendance	.000	.002	-.003	-.084	.933	-.015	-.004	-.003	.996	1.004
	ela_12_13	.013	.001	.551	14.080	.000	.558	.572	.549	.993	1.007

a. Dependent Variable: ELA#13#14#Proficiency

A binary logistic regression was performed to determine the amount of influence the independent variables, gender, SES, attendance, past performance, and placement in a co-taught inclusive ELA classroom had on Grades 6-8 general education students achieving proficiency on the 2014 New York State ELA Assessment. The Omnibus Tests of Model Coefficients table displays the model Chi-square and tests for overall significance of the fitted model. The fitted model chi-square was statistically significant (X^2= 200.917, p <.001), thus indicating that the fitted model was able to better predict those students who were proficient and those who were not proficient on the 2014 New York State ELA Assessment (see Table 24).

Table 24

Omnibus Tests of Model Coefficients: Proficiency on 2014 New York State ELA Assessment

Omnibus Tests of Model Coefficients

		Chi-square	*df*	Sig.
Step 1	Step	200.917	5	.000
	Block	200.917	5	.000
	Model	200.917	5	.000

The model summary table (Table 25) contains Cox & Snell and Nagelkerke, which provide "pseudo" R^2 estimates. These values give a rough estimate of the variance that can be predicted from the combination of independent variables (Leech, Barrett, & Morgan, 2011). According to the model summary table, approximately 38.5% to 51.4% of the variance of whether students were proficient on the 2014 New York State ELA Assessment can be predicted from the combination of variables.

Table 25

Goodness-of Fit Statistics: Proficiency on 2014 New York State ELA Assessment

Model Summary

Step	-2 Log likelihood	Cox & Snell *R* Square	Nagelkerke *R* Square
1	371.214[a]	.385	.514

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

The Block 0 Classification Table (Table 26) shows how well the null model correctly classified cases without any variable entered into the model. In this example, if someone were to guess that students were proficient on the 2014 New York State ELA Assessment, they would classify 51.6% of the students correctly by chance (Leech, Barrett, & Morgan, 2011).

The Block 1 Classification Table (Table 27) shows how well the fitted/full model correctly classified cases. In this case, 80.0% of the students who were not proficient on the 2014 New York State ELA Assessment were predicted correctly with this model, and 75.1% of the students who were proficient were predicted correctly. This indicates that the independent variables were better at helping predict who would not be proficient versus who would be proficient. Overall, 77.5% of the cases were classified correctly, an improvement of 25.9% over the null model.

Table 26

Block 0 Classficiation Table: Proficiency on 2014 New York State ELA Assessment

Classification Table[a,b]

			Predicted		
			ELA#13#14#Proficiency		Percentage
	Observed		Not Proficient	Proficient	Correct
Step 0	ELA#13#14#Proficiency	Not Proficient	0	200	.0
		Proficient	0	213	100.0
	Overall Percentage				51.6

a. Constant is included in the model.

b. The cut value is .500

Table 27

Block 1 Classification Table: Proficiency on 2014 New York State ELA Assessment

Classification Table[a]

			Predicted		
			ELA#13#14#Proficiency		Percentage
	Observed		Not Proficient	Proficient	Correct
Step 1	ELA#13#14#Proficiency	Not Proficient	160	40	80.0
		Proficient	53	160	75.1
	Overall Percentage				77.5

a. The cut value is .500

Table 28 presents the findings of the binary logistic regression analysis. Two variables, placement in a co-taught inclusive classroom (incela) and past performance (ela_12_13) were significant. In order to make the interpretation easier to understand, the independent variable, the dichotomous coding for placement in a co-taught inclusive classroom (incela) was flipped during the regression analysis. The strongest predictor of proficiency on the 2014 New York State ELA Assessment was placement in a co-taught inclusive classroom (incela), which had an odds ratio of 5.456 (95% CI= 3.169-9.393). This means that general education students had a 5.5 times greater chance, or 454% of being proficient on the 2014 New York State ELA Assessment than general education students who were placed in a co-taught inclusive classroom.

Past academic performance, as measured by the 2013 New York State ELA Assessment was also a significant predictor of proficiency. General education students who performed higher on the 2013 New York State ELA Assessment had a greater chance of being proficient on the 2014 New York State Assessment than general education students who scored lower on the

2013 New York State ELA Assessment. In other words, a one point increase on the 2013 New York State ELA Assessment increased the odds of a student passing the 2014 New York State Assessment by a multiple of 1.1, or 10%.

Table 28

Logistic Regression Analysis: Proficiency on 2014 New York State ELA Assessment

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	incela(1)	1.697	.277	37.469	1	.000	5.456	3.169	9.393
	gender	-.291	.259	1.265	1	.261	.748	.450	1.241
	ses	-.144	.524	.075	1	.784	.866	.310	2.418
	attendance	-.005	.016	.096	1	.757	.995	.964	1.027
	ela_12_13	.091	.010	89.016	1	.000	1.095	1.074	1.116
	Constant	-29.371	3.089	90.399	1	.000	.000		

a. Variable(s) entered on step 1: incela, gender, ses, attendance, ela_12_13.

The third research question and null hypothesis were as follows:

Research Question 3: What is the probability of a Grades 6-8 general education student passing the New York State ELA Assessment based on placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Null Hypothesis 3: There is no statistically significant difference in the probability of a Grades 6-8 general education student passing the New York State ELA Assessment due to

placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Based on the analysis, the null hypothesis for this research question was rejected. Placement in a co-taught inclusive classroom setting for ELA had a statistically significant influence on the probability of Grades 6-8 general education students passing the 2014 New York State ELA Assessment when controlling for gender, SES, attendance, and past academic performance.

Research Question 4: Analysis and Results

Research Question 4: What is the probability of a Grades 6-8 general education student passing the New York State Mathematics Assessment based on placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Null Hypothesis 4: There is no statistically significant difference in the probability of a Grades 6-8 general education student passing the New York State Mathematics Assessment due to placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

The purpose of Research Question 4 was to determine the amount of influence the independent variables, gender, SES, attendance, past academic performance, and placement in a co-taught inclusive math classroom had on Grades 6-8 general education students achieving proficiency on the 2014 New York State Mathematics Assessment. A binary logistic regression was conducted to answer the fourth research question. A binary logistic regression is used when running a regression when the dependent variable is dichotomous (Leech, Barrett, & Morgan, 2011). The dependent variable in this case was proficiency on the 2014 New York State

Mathematics Assessment. The dependent variable was dichotomous (0= not proficient, 1= proficient). Independent variables were coded as follows: placement in a co-taught inclusive classroom (0= general ed classroom, 1= co-taught inclusive classroom), gender (0=male, 1=female), SES (0= no free or reduced lunch, 1=free or reduced lunch), attendance (scaled), past performance (scaled score from 2013 New York State Mathematics Assessment).

Multicollinearity occurs when two or more independent variables have high intercorrelations. Because these independent variables contain the same information, they can lead to misleading and/or inaccurate results (Leech, Barrett, & Morgan, 2011). To address the potential issues of Multicollinearity, independent variables were analyzed using a correlations matrix (see Table 29). High correlations on the correlation matrix would indicate a problem with multicollinearity. However, the chart did not contain any high correlations. As a result, multicollinearity was not an issue.

Table 29

Correlations Matrix: Proficiency on 2014 New York State Mathematics Assessment

Correlation Matrix

		Constant	incmath(1)	gender	ses	attendance	math_12_13
Step 1	Constant	1.000	.013	-.139	-.076	-.032	-.997
	incmath(1)	.013	1.000	-.028	-.138	-.001	-.057
	gender	-.139	-.028	1.000	.044	-.101	.103
	ses	-.076	-.138	.044	1.000	.086	.064
	attendance	-.032	-.001	-.101	.086	1.000	.013
	math_12_13	-.997	-.057	.103	.064	.013	1.000

To rule out collinearity, the tolerance value for each independent variable must be greater than 1-R^2 (Leech, Barrett, & Morgan, 2011). Of the independent variables in the group, none

had this issue, eliminating multicollinearity as a concern (see Table 30). In addition, simultaneous and hierarchical regressions previously run using the same independent variables did not indicate multicollinearity. As a result, multicollinearity was not an issue.

Table 30

Collinearity Statistics: Proficiency on 2014 New York State Mathematics Assessment

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	*t*	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-3.195	.350		-9.138	.000					
	incmath	-.096	.043	-.109	-2.250	.025	-.228	-.123	-.105	.933	1.072
	gender	.057	.042	.064	1.374	.170	.039	.076	.064	.990	1.010
	ses	.004	.059	.003	.068	.946	-.067	.004	.003	.959	1.043
	attendance	-.001	.003	-.020	-.416	.677	-.021	-.023	-.019	.986	1.014
	math_12_13	.012	.001	.502	10.281	.000	.524	.494	.479	.912	1.097

a. Dependent Variable: Math#13#14#Proficiency

A binary logistic regression was performed to determine the amount of influence the independent variables, gender, SES, attendance, past academic performance, and placement in a co-taught inclusive math classroom had on Grades 6-8 general education students achieving proficiency on the 2014 New York State Mathematics Assessment. The Omnibus Tests of Model Coefficients table (Table 31) displays the model chi-square and tests for overall significance of the fitted model. The fitted model chi-square was statistically significant (X^2= 119.310, $p < .001$), thus indicating that the fitted model was able to better predict those students

who were proficient and those who were not proficient on the 2014 New York State Mathematics Assessment (see Table 31).

Table 31

Omnibus Tests of Model Coefficients: Proficiency on 2014 New York State Mathematics Assessment

Omnibus Tests of Model Coefficients

		Chi-square	*df*	Sig.
Step 1	Step	119.310	5	.000
	Block	119.310	5	.000
	Model	119.310	5	.000

The model summary table (Table 32) contains Cox & Snell and Nagelkerke, which provide "pseudo" R^2 estimates. These values give a rough estimate of the variance that can be predicted from the combination of independent variables (Leech, Barrett, & Morgan, 2011). According to the model summary table, approximately 30.1% to 43.7% of the variance of whether students were proficient on the 2014 New York State Mathematics Assessment can be predicted from the combination of variables.

Table 32

Goodness-of Fit Statistics: Proficiency on 2014 New York State Mathematics Assessment

Model Summary

Step	-2 Log likelihood	Cox & Snell *R* Square	Nagelkerke *R* Square
1	269.319[a]	.301	.437

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

The Block 0 Classification Table (Table 33) shows how well the null model correctly classified cases without any variable entered into the model. In this example, if someone were to guess that students were proficient on the 2014 New York State Mathematics Assessment, they would classify 73.0% of the students correctly by chance (Leech, Barrett, & Morgan, 2011).

The Block 1 Classification Table (Table 34) shows how well the fitted/full model correctly classified cases. In this case, 94.2 of the students who were not proficient on the 2014 New York State Mathematics Assessment were predicted correctly with this model, and 51.1% of the students who were proficient were predicted correctly. This indicates that the independent variables were better at helping predict who would not be proficient versus who would be proficient. Overall, 82.6% of the cases were classified correctly, an improvement of 9.6% over the null model.

Table 33

Block 0 Classification Table: Proficiency on 2014 New York State Mathematics Assessment

Classification Table[a,b]

			Predicted		
			Math#13#14#Proficiency		Percentage
	Observed		Not Proficient	Proficient	Correct
Step 0	Math#13#14#Proficiency	Not Proficient	243	0	100.0
		Proficient	90	0	.0
	Overall Percentage				73.0

a. Constant is included in the model.

b. The cut value is .500

Table 34

Block 1 Classification Table: Proficiency on 2014 New York State Mathematics Assessment

Classification Table[a]

			Predicted		
			Math#13#14#Proficiency		Percentage
	Observed		Not Proficient	Proficient	Correct
Step 1	Math#13#14#Proficiency	Not Proficient	229	14	94.2
		Proficient	44	46	51.1
	Overall Percentage				82.6

a. The cut value is .500

Table 35 presents the findings of the binary logistic regression analysis. Two variables, placement in a co-taught inclusive math classroom (incmath) and past academic performance

(math_12_13) were significant. Past academic performance was measured using the 2013 New York State Mathematics Assessment. In order to make the interpretation easier to understand, the independent variable, the dichotomous coding for placement in a co-taught inclusive classroom (incmath), was flipped during the regression analysis. The strongest predictor of proficiency on the 2014 New York State Mathematics Assessment was placement in a co-taught inclusive classroom (incmath), which had an odds ratio of 1.921 (95% CI= 1.039-3.552). This means that general education students had almost a two times greater chance, or 92%, of being proficient on the 2014 New York State Mathematics Assessment than general education students who were placed in a co-taught inclusive classroom.

Past academic performance, as measured by the 2013 New York State Mathematics Assessment was also a significant predictor of proficiency. General education students who performed higher on the 2013 New York State Mathematics Assessment had a greater chance of being proficient on the 2014 New York State Assessment than general education students who scored lower on the 2013 New York State Mathematics Assessment. In other words, a one-point increase on the 2013 New York State Mathematics Assessment increased the odds of a student passing the 2014 New York State Assessment by a multiple of 1.1, or 10%.

Table 35

Logistic Regression Analysis: Proficiency on 2014 New York State Mathematics Assessment

Variables in the Equation

		B	S.E.	Wald	*df*	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	incmath(1)	.653	.314	4.332	1	.037	1.921	1.039	3.552
	gender	.394	.308	1.643	1	.200	1.483	.812	2.711
	ses	-.115	.452	.065	1	.799	.891	.367	2.164
	attendance	-.009	.022	.159	1	.690	.991	.950	1.035
	math_12_13	.096	.013	56.413	1	.000	1.100	1.073	1.128
	Constant	-30.681	3.939	60.684	1	.000	.000		

a. Variable(s) entered on step 1: incmath, gender, ses, attendance, math_12_13.

The fourth research question and null hypothesis were as follows:

Research Question 4: What is the probability of a Grades 6-8 general education student passing the New York State Mathematics Assessment based on placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Null Hypothesis 4: There is no statistically significant difference in the probability of a Grades 6-8 general education student passing the New York State Mathematics Assessment due to placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Based on the analysis, the null hypothesis for this research question was rejected. Placement in a co-taught inclusive classroom setting for math had a statistically significant influence on the probability of Grades 6-8 general education students passing the 2014 New

York State Mathematics Assessment when controlling for gender, SES, attendance, and past academic performance.

Research Question 5: Analysis and Results

Research Question 5: What, if any, type of interaction exists between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' ELA achievement as measured by the New York State Assessment when controlling for past academic performance?

Null Hypothesis 5: There is no statistically significant interaction between gender and years placed in a co-taught inclusive classroom on Grades 6-8 general education students' ELA achievement as measured by the New York State Assessment when controlling for past academic performance.

The purpose of Research Question 5 was to determine if there was a significant interaction between gender and placement in a co-taught inclusive classroom. Past academic performance was a statistically significant independent variable, accounting for the largest percentage of variance in achievement scores. As a result, a factorial ANCOVA was used to compare the students based on the two independent variables (gender and placement in a co-taught inclusive classroom) while controlling for past academic performance.

Table 36

Test of Between Subject Effects, ELA

Tests of Between-Subjects Effects

Dependent Variable: ela_13_14

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	95772.167[a]	4	23943.042	97.111	.000	.488	388.443	1.000
Intercept	15703.055	1	15703.055	63.690	.000	.135	63.690	1.000
ela_12_13	89391.903	1	89391.903	362.565	.000	.471	362.565	1.000
incela	4820.329	1	4820.329	19.551	.000	.046	19.551	.993
gender	524.414	1	524.414	2.127	.145	.005	2.127	.307
incela * gender	107.131	1	107.131	.435	.510	.001	.435	.101
Error	100594.138	408	246.554					
Total	41370561.000	413						
Corrected Total	196366.305	412						

a. R Squared = .488 (Adjusted R Squared = .483)

b. Computed using alpha = .05

In the ANCOVA analysis (Table 36), the influence of past academic performance (ela_12_13) was found to have a significant impact on the dependent variable of ELA achievement, as measured by achievement on the 2014 New York State ELA Assessment (ela_13_14), F=362.565, df= 1,408, $p \leq .000$. The Eta (index for the effect size of each independent variable and the interaction) for ela_12_13 was .471, which provided an effect size of .69, a large effect size (Field, 2015). Also, the influence of placement in a co-taught inclusive classroom (incela) was found to have a significant impact on the dependent variable of ELA achievement (ela_13_14), F=19.551, df= 1,408, $p \leq .000$. The Eta (index for the effect size of each independent variable and the interaction) for placement in the co-taught inclusive classroom

(incela) was .046, which provided us with an effect size of .21, a moderately weak effect size (Field, 2015). Gender was not found to have a significant influence on the dependent variable of ELA achievement (ela_13_14), p=.145. The interaction between incela and gender was not found to have a significant impact on the dependent variable of ela_13_14 (p=.510).

Research Question 5: What, if any, type of interaction exists between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' ELA achievement as measured by the New York State Assessment when controlling for past academic performance?

Null Hypothesis 5: There is no statistically significant interaction between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' ELA achievement as measured by the New York State Assessment when controlling for past academic performance.

Based on the analysis, the null hypothesis for this research question was retained. There was no significant interaction between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' ELA achievement as measured by the 2014 New York State ELA Assessment when controlling for past academic performance.

Research Question 6: Analysis and Results

Research Question 6: What, if any, type of interaction exists between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' Mathematics achievement as measured by the New York State Assessment when controlling for past academic performance?

Null Hypothesis 6: There is no statistically significant interaction between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students'

mathematics achievement as measured by the New York State Assessment when controlling for past academic performance.

The purpose of Research Question 6 was to determine if there was a significant interaction between gender and placement in a co-taught inclusive classroom. Past academic performance was a statistically significant independent variable, accounting for the largest percentage of variance in achievement scores. As a result, a factorial ANCOVA was used to compare the students based on the two independent variables (gender and placement in a co-taught inclusive classroom) while controlling for past academic performance.

Table 37

Test of Between Subject Effects, Mathematics

Tests of Between-Subjects Effects

Dependent Variable: math_13_14

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	84440.807[a]	4	21110.202	98.442	.000	.546	393.769	1.000
Intercept	8201.834	1	8201.834	38.247	.000	.104	38.247	1.000
math_12_13	65927.736	1	65927.736	307.438	.000	.484	307.438	1.000
incmath	4846.292	1	4846.292	22.600	.000	.064	22.600	.997
gender	349.474	1	349.474	1.630	.203	.005	1.630	.247
incmath * gender	3.512	1	3.512	.016	.898	.000	.016	.052
Error	70337.091	328	214.442					
Total	31780228.000	333						
Corrected Total	154777.898	332						

a. R Squared = .546 (Adjusted R Squared = .540)

b. Computed using alpha = .05

In the ANCOVA analysis (Table 37), the influence of past academic performance (math_12_13) was found to have a significant impact on the dependent variable of mathematics

achievement as measured by achievement on the 2014 New York State Mathematics Assessment (math_13_14), F=307.438, df= 1,328, $p\leq$.000. The Eta (index for the effect size of each independent variable and the interaction) for math_12_13 was .484, which provided us with an effect size of .69, a large effect size (Field, 2015). Also, the influence of placement in a co-taught inclusive classroom (incmath) was found to have a significant impact on the dependent variable of Mathematics achievement (math_13_14), F=22.600, df= 1,328, $p\leq$.000. The Eta (index for the effect size of each independent variable and the interaction) for placement in the co-taught inclusive classroom (incmath) was .064, which provided us with an effect size of .25, a moderately weak effect size (Field, 2015). Gender was not found to have a significant influence on the dependent variable of Mathematics achievement (math_13_14), p=.203. The interaction between incmath and gender was not found to have a significant impact on the dependent variable of math_13_14 (p=.898).

Research Question 6: What, if any, type of interaction exists between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' mathematics achievement as measured by the New York State Mathematics Assessment when controlling for past academic performance?

Null Hypothesis 6: There is no statistically significant interaction between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' mathematics achievement as measured by the New York State Mathematics Assessment when controlling for past academic performance.

Based on the analysis, the null hypothesis for this research question was retained. There was no significant interaction between gender and placement in a co-taught inclusive classroom

on Grades 6-8 general education students' mathematics achievement as measured by the 2014 New York State Mathematics Assessment when controlling for past academic performance.

Conclusion

In conclusion, the null hypotheses for Research Questions 1-4 were rejected. The results indicate that general education students who were placed in a co-taught inclusive classroom for both ELA and math scored significantly lower than those general education students who were not placed in a co-taught inclusive classroom for both ELA and Mathematics. General education students in Grades 6-8 who were placed in a co-taught inclusive classroom for ELA and math scored significantly lower than general education students who were not placed in the co-taught inclusive classroom for ELA and math.

The null hypotheses for Research Questions 5 and 6 were retained. The results indicate that there was no significant interaction between gender and placement in a co-taught inclusive classroom for either ELA or Mathematics when controlling for past academic performance. However, the analyses in Research Questions 5 and 6 supported that there was a significant relationship between past academic performance and both ELA and math achievement. The analyses also supported that there was a significant relationship between placement in a co-taught inclusive classroom and both ELA and math achievement. A more in-depth discussion of these analyses is articulated in Chapter 5

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

Federal mandates have led to an increase of inclusion classrooms from Grades K-12 throughout the country (Nichols et al., 2010). This, combined with more emphasis on high-stakes testing, including teacher evaluations now based on student performance as measured by high-stakes assessments, has led to finding a model that best fits the needs of students and will increase academic achievement. Research exists on inclusion and its impact on the academic achievement of special education students (Scruggs & Mastropieri, 1996; Daniel & King, 1997; Brady, 2010). However, as the inclusion model has evolved, examining new models and their impact on all students is essential.

Purpose

The purpose of this study was to examine the influence of the co-taught inclusive classroom on the academic achievement of general education students on the New York State Assessment for English Language Arts (ELA) and Mathematics in Grades 6-8 at a middle school in a mid/upper socioeconomic school district located in a suburb of New York City. Additionally, the study examined the impact of other student mutable variables such as gender, socioeconomic status, class attendance, past academic performance, and ethnicity on the dependent variable, which was defined as student achievement on the New York State Assessment in ELA and mathematics in Grades 6-8.

Organization of the Chapter

In this chapter, the six research questions that were examined are listed and the results are discussed. The results are analyzed and compared to previous research on the subject. Based on

the findings, recommendations for administrative policy and practice, as well recommendations for future research are made.

Research Questions and Answers

Research Question 1: What influence, if any, does placement in a co-taught inclusive classroom have on general education students' ELA achievement as measured by the New York State Assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Null Hypothesis 1: There is no statistically significant relationship between placement in a co-taught inclusive classroom and a general education student's academic achievement in Grades 6-8 on the New York State ELA assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Answer: Based on the analysis, the null hypothesis for this research question was rejected. Placement in a co-taught inclusive classroom setting for ELA had a statistically significant influence on Grades 6-8 general education students' performance as measured by the 2014 New York State ELA Assessment when controlling for gender, SES, attendance, and past academic performance.

At first, a simultaneous multiple regression was run to answer the first research question. The purpose was to determine the amount of influence the independent variables, gender, SES, attendance, past performance, and placement in a co-taught inclusive ELA classroom had on Grades 6-8 students' performance on the 2014 New York State ELA Assessment. It was determined that the independent variables contributed to 48.8% of the variance in performance on the 2014 New York State ELA Assessment.

To better control for the influence of the control variables on the dependent variable, a hierarchical multiple regression was performed. It was determined that two of the variables

included in this model were statistically significant predictors of performance on the 2014 New York State ELA Assessment. Placement in the co-taught inclusive classroom contributed to 3.2% of the variance, while past academic performance contributed to 41.6% of the variance for the dependent variable. Past academic performance was the strongest predictor on the 2014 New York State ELA Assessment.

According to this analysis, past academic performance on the 2013 New York State ELA Assessment was the strongest predictor of academic performance on the 2014 New York State ELA Assessment. There was a positive relationship between past academic performance and performance on the 2014 New York State ELA Assessment. As performance increased on the 2013 New York State ELA Assessment, performance on the 2014 New York State ELA Assessment increased as well.

Placement in the ELA co-taught inclusive classroom was also a predictor of performance on the 2014 New York State ELA Assessment. There was a negative relationship between placement in the ELA co-taught inclusive classroom on performance on the 2014 New York State ELA Assessment. General education students who were placed in the ELA co-taught inclusive classroom performed lower than general education students who were not placed in the ELA co-taught inclusive classroom.

Research Question 2: What influence, if any, does placement in a co-taught inclusive classroom have on general education students' math achievement as measured by the New York State Assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Null Hypothesis 2: There is no statistically significant relationship between placement in a co-taught inclusive classroom and a general education student's academic achievement in

Grades 6-8 on the New York State Math assessment when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Answer: Based on the analysis, the null hypothesis for this research question was rejected. Placement in a co-taught inclusive classroom setting for math had a statistically significant influence on Grades 6-8 general education students' performance as measured by the 2014 New York State Mathematics Assessment when controlling for gender, SES, attendance, and past academic performance.

At first, a simultaneous multiple regression was run to answer the second research question. The purpose was to determine the amount of influence the independent variables, gender, SES, attendance, past performance, and placement in a co-taught inclusive Math classroom had on Grades 6-8 students' performance on the 2014 New York State Mathematics Assessment. It was determined that the independent variables contributed to 53.9% of the variance in performance on the 2014 New York State Mathematics Assessment.

To better control for the influence of the control variables on the dependent variable, a hierarchical multiple regression was performed. It was determined that two of the variables included in this model were statistically significant predictors of performance on the 2014 New York State Mathematics Assessment. Placement in the co-taught inclusive classroom contributed to 11.7% of the variance, while past academic performance contributed to 27.6% of the variance for the dependent variable. Past academic performance was the strongest predictor on the 2014 New York State Mathematics Assessment.

According to this analysis, past academic performance on the 2013 New York State Mathematics Assessment was the strongest predictor of academic performance on the 2014 New York State Mathematics Assessment. There was a positive relationship between past academic

performance and performance on the 2014 New York State Mathematics Assessment. As performance increased on the 2013 New York State Mathematics Assessment, performance on the 2014 New York State Mathematics Assessment increased as well.

Placement in the Math co-taught inclusive classroom was also a predictor of performance on the 2014 New York State Mathematics Assessment. There was a negative relationship between placement in the Math co-taught inclusive classroom on performance on the 2014 New York State Mathematics Assessment. General education students who were placed in the Math co-taught inclusive classroom performed lower than general education students who were not placed in the Math co-taught inclusive classroom.

Research Question 3: What is the probability of a Grades 6-8 general education student passing the New York State ELA Assessment based on placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Null Hypothesis 3: There is no statistically significant difference in the probability of a Grades 6-8 general education student passing the New York State ELA Assessment due to placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Answer: Based on the analysis, the null hypothesis for this research question was rejected. Placement in a co-taught inclusive classroom setting for ELA had a statistically significant influence on the probability of Grades 6-8 general education students passing the 2014 New York State ELA Assessment when controlling for gender, SES, attendance, and past academic performance.

A binary logistic regression was performed to determine the amount of influence the independent variables, gender, SES, attendance, past performance, and placement in a co-taught inclusive ELA classroom had on Grades 6-8 general education students achieving proficiency on the 2014 New York State ELA Assessment. It was determined that approximately 38.5% to 51.4% of the variance of whether students were proficient on the 2014 New York State ELA Assessment can be predicted from the combination of variables.

Two variables, placement in a co-taught inclusive ELA classroom and past academic performance were significant. The strongest predictor of proficiency on the 2014 New York State ELA Assessment was placement in a co-taught inclusive ELA classroom. General education students who were not placed in a co-taught inclusive classroom had a 5.5 times greater chance, or 454%, of being proficient on the 2014 New York State ELA Assessment than general education students who were placed in a co-taught inclusive classroom.

Past academic performance, as measured by the 2013 New York State ELA Assessment was also a significant predictor of proficiency. General education students who performed higher on the 2013 New York State ELA Assessment had a greater chance of being proficient on the 2014 New York State Assessment than general education students who scored lower on the 2013 New York State ELA Assessment. In other words, a one point increase on the 2013 New York State ELA Assessment increased the odds of a student passing the 2014 New York State Assessment by a multiple of 1.1, or 10%.

Research Question 4: What is the probability of a Grades 6-8 general education student passing the New York State Mathematics Assessment based on placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance?

Null Hypothesis 4: There is no statistically significant difference in the probability of a Grades 6-8 general education student passing the New York State Mathematics Assessment due to placement in a co-taught inclusive classroom when controlling for gender, socioeconomic status, class attendance, ethnicity, and past academic performance.

Answer: Based on the analysis, the null hypothesis for this research question was rejected. Placement in a co-taught inclusive classroom setting for math had a statistically significant influence on the probability of Grades 6-8 general education students passing the 2014 New York State Mathematics Assessment when controlling for gender, SES, attendance, and past academic performance.

A binary logistic regression was performed to determine the amount of influence the independent variables, gender, SES, attendance, past performance, and placement in a co-taught inclusive math classroom had on Grades 6-8 general education students achieving proficiency on the 2014 New York State Mathematics Assessment. It was determined that approximately 30.1% to 43.7% of the variance of whether students were proficient on the 2014 New York State Mathematics Assessment can be predicted from the combination of variables.

Two variables, placement in a co-taught inclusive math classroom and past academic performance were significant. The strongest predictor of proficiency on the 2014 New York State Mathematics Assessment was placement in a co-taught inclusive math classroom. General education students who were not placed in a co-taught inclusive classroom had a two times greater chance, or 92%, of being proficient on the 2014 New York State Mathematics Assessment than general education students who were placed in a co-taught inclusive math classroom.

Past academic performance, as measured by the 2013 New York State Mathematics Assessment was also a significant predictor of proficiency. General education students who performed higher on the 2013 New York State Mathematics Assessment had a greater chance of being proficient on the 2014 New York State Assessment than general education students who scored lower on the 2013 New York State Mathematics Assessment. In other words, a one-point increase on the 2013 New York State Mathematics Assessment increased the odds of a student passing the 2014 New York State Assessment by a multiple of 1.1, or 10%.

Research Question 5: What, if any, type of interaction exists between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' ELA achievement as measured by the New York State Assessment when controlling for past academic performance?

Null Hypothesis 5: There is no statistically significant interaction between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' ELA achievement as measured by the New York State Assessment when controlling for past academic performance.

Answer: Based on the analysis, the null hypothesis for this research question was retained. There was no significant interaction between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' ELA achievement as measured by the 2014 New York State ELA Assessment when controlling for past academic performance.

A factorial analysis of covariance (ANCOVA) was used to answer the fifth research question. The factorial ANCOVA was used to determine if there was a significant interaction between gender and placement in a co-taught inclusive classroom. Past academic performance was a statistically significant independent variable accounting for the largest percentage of

variance in achievement scores. As a result, a factorial ANCOVA was used to compare the students based on the two independent variables (gender and placement in a co-taught inclusive classroom) while controlling for past academic performance.

Past academic performance was found to have a significant impact on the dependent variable, ELA achievement, as measured by the 2014 New York State ELA Assessment. The effect size was .69, a large effect size (Field, 2015). Placement in a co-taught inclusive classroom also had a significant impact on the dependent variable, ELA achievement, as measured by the 2014 New York State ELA Assessment. The effect size was .21, a moderately weak effect size (Field, 2015). However, the interaction between placement in a co-taught inclusive ELA classroom and gender was not found to have a significant impact on the dependent variable.

Research Question 6: What, if any, type of interaction exists between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' Mathematics achievement as measured by the New York State Assessment when controlling for past academic performance?

Null Hypothesis 6: There is no statistically significant interaction between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' mathematics achievement as measured by the New York State Assessment when controlling for past academic performance.

Answer: Based on the analysis, the null hypothesis for this research question was retained. There was no significant interaction between gender and placement in a co-taught inclusive classroom on Grades 6-8 general education students' Mathematics achievement as

measured by the 2014 New York State Mathematics Assessment when controlling for past academic performance.

A factorial analysis of covariance (ANCOVA) was used to answer the sixth research question. The Factorial ANCOVA was used to determine if there was a significant interaction between gender and placement in a co-taught inclusive math classroom. Past academic performance was a statistically significant independent variable accounting for the largest percentage of variance in achievement scores. As a result, a factorial ANCOVA was used to compare the students based on the two independent variables (gender and placement in a co-taught inclusive math classroom) while controlling for past academic performance.

Past academic performance was found to have a significant impact on the dependent variable, math achievement, as measured by the 2014 New York State Mathematics Assessment. The effect size was .69, a large effect size (Field, 2015). Placement in the co-taught inclusive math classroom also had a significant impact on the dependent variable, math achievement, as measured by the 2014 New York State Mathematics Assessment. The effect size was .25, a moderately weak effect size (Field, 2015). However, the interaction between placement in the co-taught inclusive math classroom and gender was not found to have a significant impact on the dependent variable.

Conclusions

The results of this study indicate that placement in a co-taught inclusive classroom was a statistically significant variable that influenced performance in both ELA and mathematics for general education students. General education students placed in a co-taught inclusive classroom did not perform as well on the 2014 New York State ELA and Mathematics Assessments as their peers who were not placed in a co-taught inclusive classroom. General education students who

were placed in a co-taught inclusive classroom had lower mean scores on both the 2014 ELA and Mathematics Assessments as compared to their peers who were not placed in a co-taught inclusive classroom. The mean scaled score for students not placed in a co-taught inclusive classroom on the 2014 New York State ELA Assessment was 319.66, while the mean score for students placed in the co-taught inclusive classroom was 311.85. The mean scaled score for students not placed in a co-taught inclusive classroom on the 2014 New York State Mathematics Assessment was 315.52, while the mean score for students placed in the co-taught inclusive classroom was 300.78. Additionally, general education students who were not placed in a co-taught inclusive classroom were more likely to be proficient on both the 2014 ELA and Mathematics Assessments as compared to general education students who were placed in a co-taught inclusive classroom. It should be noted that in the cases of both the co-taught inclusive ELA classroom and the co-taught inclusive mathematics classroom, the placement, while statistically significant, had a moderately weak effect size.

However, caution must be exercised in using the data because certain school variables regarding the co-taught inclusive classroom, like program implementation, teacher perceptions of the co-taught inclusive model, and peer grouping within the co-taught inclusive classroom, must be considered. In addition, the sample used in this study was from an upper middle class, suburban school district in New York, and results may be generalized only to a similar population.

Previous research using empirical studies indicated mixed results regarding general education students' academic performance when placed in the inclusive classroom. Some studies identified little impact of the co-taught inclusive classroom on academic achievement (Daniel & King, 1997; McLeod, 2007; Brady 2010; Harrison, 2011). Other research indicated

that general education students perform better in the co-taught inclusive classroom versus the general education classroom (Riedesel, 1997; Rigdon, 2010). More recent research does indicate that general education students in the inclusive classroom do not perform as well as their peers who are not placed in an inclusive classroom environment on high-stakes assessments (Parker, 2010; Robinson, 2012; Brown, 2015).

The findings in this study were most consistent with the research of Parker (2010), Robinson (2012), and Brown (2015). Parker (2010) examined the impact of the co-taught inclusive classroom on general education tenth grade students on the Florida Comprehensive Achievement Test. Parker's results indicated that tenth grade general education students not placed in the co-taught inclusive classroom performed better than tenth grade students placed in the co-taught inclusive classroom.

Brown (2015) examined the influence of placement in an inclusive English classroom on the academic performance of general education eleventh grade students on the Language Arts Literacy section of the NJ HSPA. Similar to this study, Brown used a suburban sample population. Brown also utilized the propensity score matching (PSM) technique in her sampling to reduce selection bias as was done in this study. The conclusions were similar as well. Brown determined that, though the influence was small, placement in an inclusive setting had a negative impact on academic achievement. General education students in an inclusive setting performed lower than their peers in general education classrooms on the 2013 NJ HSPA.

Robinson (2012) examined the effects of placement in an inclusive setting on the academic achievement of Grades 6, 7, and 8 general education students on the Language Arts Literacy and Mathematics section of the NJ ASK. Robinson's sample population was from two schools in a large urban school district in New Jersey. Similar to this study, Robinson's study

indicated that in one of the two schools general education students placed in the inclusive setting scored lower than their peers in the general education classroom for both Language Arts and Mathematics. In her recommendations for future research, Robinson recommended recreating her study in a suburban school district as well as using logistic regression to determine an odds probability of passing the NJ ASK based on a general education students' placement in an inclusive classroom.

This study put Robinson's recommendations into practice, analyzing the interaction of placement in an inclusive classroom (in this case, a co-taught inclusive classroom) on a high stakes assessment (in this case, the New York State ELA and Mathematics Assessments). The population in this case was suburban as compared to Robinson's urban population. In this study, general education students in the co-taught inclusive classroom scored lower than their peers in the general education classroom on high-stakes assessments. In examining this interaction further, it was also determined that general education students placed in the co-taught inclusive classroom were less likely to be proficient on the 2014 New York State Assessments in ELA and Mathematics than their peers in the general education classroom setting.

One potential common factor among the studies appears to be the peer groupings utilized by the schools districts. Robinson (2012) speculated the negative impact of the inclusive classroom on academic performance in one of the schools in the study could be the result of homogenous grouping of low-achievers used to populate the inclusion classroom. Whether or not this was intentional or random was not indicated, but the general education students in the inclusion classrooms scored, on average, twenty points lower than their peers placed in the general education classroom on the NJ ASK (Robinson, 2012).

Past research indicates that classroom peers can have an influence on a student's

academic achievement (Burke & Sass, 2011). Slavin (1987) warned against class assignment based on ability, known as between-class ability grouping or "tracking." He stated that research has shown that not only does placement in a class based on ability have little impact on high and low ability learners, but that "tracking" can have a negative impact on low achievers because of the stigma and low expectations placed on them (Slavin, 1987). More recent research supports Slavin's claims. Hoffer (1992) determined that ability grouping has no benefit in either math or science for students and that in some cases grouping had a negative impact on academic achievement for low groups. Burke and Sass (2011) recommend tracking for high achievers but make a point to indicate that this policy would not be best for low achievers.

In this study, similar to Robinson's (2012), general education students placed in the co-taught inclusive math classroom were lower achievers according to past academic performance. General education students in the co-taught inclusive classroom scored, on average, lower than their peers in the general education classroom on the 2013 New York State Mathematics Assessment. The mean score for general education students in the co-taught inclusive classroom was 295.4, as compared to the general education student in the general education classroom, which was 304.4.

Whether this homogenous grouping of lower achieving general education students was random or based on a philosophical approach from the school district is unknown. However, based on previous research, it must be considered that this type of peer grouping could have influenced the academic performance of the students in the co-taught inclusive classroom.

Other school factors, such as the implementation of the co-taught inclusive program cannot be identified as contributing to the lower performance for general education students placed in the co-taught inclusive classroom. In cases where the co-taught inclusive classroom

had a positive impact on the achievement of general education students (Riedesel 1997; Rigdon, 2010), many of these school factors are discussed.

Riedesel (1997) examined the impact of the co-taught inclusive classroom on eighth grade general education students in Texas public schools. It was determined that general education students in the co-taught inclusive classroom outperformed their peers in the general education classroom on the Texas Assessment of Academic Skills. Riedesel discussed the implementation process and staff development given to teachers prior to implementation of the co-taught inclusive models as possible factors in creating a successful and effective program (Riedesel, 1997).

Rigdon (2010) analyzed the impact of the co-taught inclusive model on the academic achievement of general education students on the Basic Skills Algebra Assessment. She found that general education students in the co-taught inclusive model outperformed their peers on the assessment. Rigdon's mixed methods study included a survey, in which the teachers who participated in the co-taught inclusive model indicated they had adequate support from district and school level administrators in terms of program implementation. In addition, teachers were given time to collaborate (common planning), as well as professional development on how to share responsibilities within the co-taught inclusive classroom (Rigdon, 2010).

These school factors, implementation of the co-taught inclusive classroom, common planning time, teacher fit, as well as student grouping, are addressed in the next section.

Recommendations for Administrative Policy and Practice

The findings from this study may be shared with school leaders in order to address the issues of the co-taught inclusive classroom and its impact on student performance. Evidence is mounting that inclusion influences the academic performance on general education students as

well as special education students; in fact, results seem to suggest a negative influence (Robinson, 2012; Brown, 2015). The impact on general education students must be further evaluated, as the co-taught inclusive classroom may not be the best placement for all students.

In some cases, research indicates that inclusion can have a negative impact on the academic performance of general education students (Robinson, 2012; Brown, 2015). Other research indicates that inclusion has no significant impact on the academic performance of general education students (Daniel & King, 1997; McLeod, 2007; Brady 2010; Harrison, 2011). In these cases, some researchers have recommended that the inclusion model not be implemented if the main purpose is improving academic achievement (Daniel & King, 1997).

However, inclusion, especially the co-taught inclusive model continues to grow nation-wide (Murawski, 2012). School leaders must evaluate the co-taught inclusive model in their buildings. Some research indicates that the co-taught inclusive model can have a positive impact on the academic achievement of general education students (Riedesel, 1997; Rigdon, 2010). Those studies point to the importance of proper implementation, including professional development, adequate common planning time for teachers to collaborate, and careful selection of teacher participants in the model. Combining these components with the proper heterogeneous student population and student achievement in the co-taught inclusive model could improve.

Implementation

This study recommends that school and district administrators ensure that the co-taught inclusive model is implemented with fidelity. Schools could follow guidelines like those developed by Cook & Friend (1995). These guidelines focus on implementing the co-taught inclusive model by providing in depth professional development on the different approaches,

such as one-teach, one assist; station teaching; parallel teaching; alternative teaching; and team teaching. Not only should the professional development describe the approaches but help co-teachers develop an understanding that these approaches can be used interchangeably in a classroom depending on the student population and intended outcomes (Cook & Friend, 1995). The professional development during implementation should also focus on assisting teachers with defining their roles within the co-taught inclusive model. These roles and responsibilities may evolve over time but should be addressed during implementation and discussed as teachers meet during common planning time, which is discussed later in this section.

Mixed methods studies indicating that the co-taught inclusive classroom had a positive impact on the academic achievement of general education students also indicated that teachers believed that the implementation process, including staff development, properly prepared them for the model (Riedesel, 1997, Rigdon, 2010).

Teacher Fit

School and district leaders must also examine teacher perceptions of the co-taught inclusive model to determine if individuals are the "right fit" (Isherwood & Barger-Anderson. 2008). Teachers with positive perceptions of the model can provide more positive outcomes for students in the co-taught inclusive model (Mastropieri et al., 2005). Positive perceptions of the co-taught inclusive model is dependent upon the support from district and building administration, the relationship between co-teachers, and the amount of planning time given to the team (Mastropieri et al., 2005). Identifying these factors could lead to positive teacher perception of the co-taught inclusive model and potentially improve student academic performance.

Peer Grouping

It is recommended that schools examine scheduling and the process by which students are recommended and selected for the co-taught inclusive classroom. Creating homogenous groupings of low achieving students, both general education and special education, can lead to poor academic performance (Slavin, 1987). Therefore, administrators should not overload their co-taught inclusive classrooms, or any of their classrooms for that matter, with too many low achieving students. A balance of high and low achieving students can promote greater achievement among the struggling learners in the classroom (Burke & Sass, 2011).

In conclusion, school and district leaders should craft a well-developed implementation strategy when bringing the co-taught inclusive model into their buildings, which includes being cognizant of teacher selection and developing sustainability, with common planning time. Failure to take these factors into account, including homogenous grouping of low-achieving students, could lead to a co-taught inclusive model with flawed design and negatively impact student academic performance.

Recommendations for Future Research

Although the number of empirical research studies continues to grow, overall there is still limited research on the impact of the co-taught inclusive classroom on general education students. This study provides empirical evidence to add to the existing body of research. However, it is not possible for one study to provide all the answers. Additional studies on the topic of the co-taught inclusive classroom and general education students could assist policy makers and district and school leaders on how to properly implement the model, recognize which teachers are the best fit for the model, recognize which students would be best served in the model, and develop strategies to continue the model's success after implementation. Future research in this area could include, but is not limited to the following:

1. Conduct a longitudinal study in which the interaction between number of years in a co-taught inclusive model and academic achievement is analyzed from Grades 6-11.
2. Design a mixed methods study in which teacher attitudes and perceptions toward the co-taught inclusive model are analyzed and then compare the relationship between their attitudes and perceptions and student achievement.
3. Recreate this study using multiple schools in New York State to examine how placement in the co-taught inclusive classroom influences achievement of general education students when the co-taught inclusive classroom is implemented with different levels of fidelity.
4. Design a qualitative study investigating the different learning styles of students and the influence of the co-taught inclusive model on students with those different learning styles.

Conclusion

The results of this study, the increased use of the co-taught inclusive classroom model in schools, and the emphasis of high-stakes testing to evaluate teacher, principal, and student performance suggest that further study on the influence of the co-taught inclusive classroom is necessary. The New York State Assessment, like high-stakes assessments in other states, is now used as a measure of teacher effectiveness. Improving the academic performance of all students, but especially struggling learners, could now determine whether or not a teacher continues in the profession. Developing effective co-taught inclusive programs that promote student achievement are essential because these programs tend include the population most in need of improvement.

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APPENDICES

Appendix A: Request to Conduct Research

REQUEST TO CONDUCT EDUCATIONAL RESEARCH, STUDIES, AND/OR SURVEYS [redacted]

Please complete the following and forward to the Associate Superintendent for Elementary Education, the Associate Superintendent for Secondary Education or the Associate Superintendent for Pupil Services, [redacted], at least one month prior to the start of the proposed survey.

Name of Applicant: Michael St. John

Title (Position of Applicant): Coordinator of Secondary Education

Organization Applicant Represents: Seton Hall University

Description of Organization: Post-Secondary institution, Private University

Business Address:
Department of Education Leadership, Management, and Policy
400 South Orange Ave
South Orange, NJ 07079

Telephone Number: 973-761-9397

Please describe the proposed research in terms of the following: subject, procedures, purpose, people involved (student and faculty), length of time and frequency, place, people conducting research.

Subject: The influence of placement in a co-taught inclusive classroom on the academic achievement of general education students on the New York State ELA and Mathematics Assessments in grades 6-8.

Procedures: Once given permission from CCSD, Mr. St. John will receive New York State Assessment scores and other relevant variables of students in grades 6-8 from the district's data coordinator. Each score and related variable will be assigned a random number to ensure the data remains anonymous and confidential. Mr. St. John will then conduct an analysis of the data to determine if there is a statistical significance between test scores and the variables.

Purpose: The goal of finding the least restrictive environment for special education students, along with maintaining a tight budget during difficult economic times has led to an increased use of the co-teaching model. While current research exists to support the effectiveness of this

model for special education students, there is limited research to show the effect on general education students.

People Involved: None. Mr. St. John, assisted by professor Dr. Gerard Babo will analyze a database of New York State Assessment scores as well as relevant variables to use in a quantitative statistical analysis provided by the district. The assessment scores used in the study will remain anonymous and confidential.

Length of time and frequency: The study will begin once permission is granted by the CCSD and Seton Hall's Institutional Review Board (IRB). The study will end by June 2015.

Information need to complete the study:

-2012-2013 6th, 7th, and 8th grade ELA and Math Scale Scores
-2013-2014 6th, 7th, and 8th grade ELA and Math Scale Scores
-Scheduling information (co-taught and general classroom placements)
-Demographic information (gender, SES, ethnicity)
-Attendance information

Place: Mr. St. John will complete work at home and at [redacted] during non-work hours.

People Conducting Research: Mr. St. John

*Once CCSD permission is granted, Mr. St. John must also apply to Seton Hall University's Institutional Review Board (IRB) for permission to begin the study.

Appendix B: Permission Letter

[redacted] CENTRAL SCHOOL DISTRICT

Superintendent of Schools

[redacted]

January 6, 2015

Michael St. John
[redacted]

Dear Michael:

Your request to conduct educational research with data supplied by the [redacted] District has been approved, with the understanding that the names of [redacted] students and the district will be kept anonymous. Please contact [redacted] to receive the information.

Sincerely,

[redacted]

Superintendent of Schools

Appendix C: “MatchIt” Matched Cases

```
R Console                                                                Page 1


R version 3.0.3 (2014-03-06) -- "Warm Puppy"
Copyright (C) 2014 The R Foundation for Statistical Computing
Platform: i386-w64-mingw32/i386 (32-bit)

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[Previously saved workspace restored]

> install.packages("MatchIt")
--- Please select a CRAN mirror for use in this session ---
trying URL 'http://lib.stat.cmu.edu/R/CRAN/bin/windows/contrib/3.0/MatchIt_2.4-21.zip'
Content type 'application/zip' length 78110 bytes (76 Kb)
opened URL
downloaded 76 Kb

package 'MatchIt' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
        C:\Users\babogera\AppData\Local\Temp\Rtmpc9jLPH\downloaded_packages
> instal.packages("optmatch")
Error: could not find function "instal.packages"
> install.packages("optmatch")
trying URL 'http://lib.stat.cmu.edu/R/CRAN/bin/windows/contrib/3.0/optmatch_0.9-3.zip'
Content type 'application/zip' length 596290 bytes (582 Kb)
opened URL
downloaded 582 Kb

package 'optmatch' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
        C:\Users\babogera\AppData\Local\Temp\Rtmpc9jLPH\downloaded_packages
> library(MASS)
> library(MatchIt)
> library(optmatch)
Loading required package: digest
You're loading optmatch, by B. Hansen and M. Fredrickson.
 The optmatch package makes essential use of D. P. Bertsekas
 and P. Tseng's RELAX-IV algorithm and code, as well as
 Bertsekas' AUCTION algorithm and code.  Using the software
 to 'satisfy in any part commercial delivery requirements to
 government or industry' requires a special agreement with
 Dr. Bertsekas. For more information, enter
 relaxinfo() at the command line.

> Data3<-read.csv("C:/StJohn_ELA2.csv")
> m1a.out <- matchit(incela ~ gender + ses + attendance + ethnicity + ell + gd + ela_12_13 + hono
rs_ela_13_14, data = Data3, method = "optimal", distance = "logit", ratio = 1)
Warning message:
In fullmatch(d, min.controls = ratio, max.controls = ratio, omit.fraction = (n0 -  :
  Without 'data' argument the order of the match is not guaranteed
    to be the same as your original data.
> summary(m1a.out)

Call:
matchit(formula = incela ~ gender + ses + attendance + ethnicity +
    ell + gd + ela_12_13 + honors_ela_13_14, data = Data3, method = "optimal",
    distance = "logit", ratio = 1)
```

R Console


```
Summary of balance for all data:
                Means Treated Means Control SD Control Mean Diff eQQ Med
distance               0.2262        0.1425     0.1077    0.0837  0.0858
gender                 0.4858        0.4978     0.5002   -0.0120  0.0000
ses                    0.0613        0.0956     0.2941   -0.0342  0.0000
attendance             4.8443        3.9670     6.7692    0.8774  1.0000
ethnicity              0.5330        0.5152     0.9201    0.0178  0.0000
ell                    0.0330        0.0608     0.2391   -0.0278  0.0000
gd                     7.4292        6.8384     0.8182    0.5908  1.0000
ela_12_13            319.0519      317.3519    31.1241    1.7000  2.0000
honors_ela_13_14       0.0047        0.0304     0.1718   -0.0257  0.0000
                eQQ Mean  eQQ Max
distance          0.0838   0.1678
gender            0.0094   1.0000
ses               0.0330   1.0000
attendance        0.9434  14.0000
ethnicity         0.0283   1.0000
ell               0.0283   1.0000
gd                0.5896   1.0000
ela_12_13         4.4198 174.0000
honors_ela_13_14  0.0283   1.0000


Summary of balance for matched data:
                Means Treated Means Control SD Control Mean Diff eQQ Med
distance               0.2262        0.2262     0.0988    0.0001   4e-04
gender                 0.4858        0.4858     0.5010    0.0000   0e+00
ses                    0.0613        0.0660     0.2489   -0.0047   0e+00
attendance             4.8443        4.5943     8.0840    0.2500   1e+00
ethnicity              0.5330        0.5991     0.9855   -0.0660   0e+00
ell                    0.0330        0.0283     0.1662    0.0047   0e+00
gd                     7.4292        7.4387     0.5930   -0.0094   0e+00
ela_12_13            319.0519      314.4057    33.8689    4.6462   3e+00
honors_ela_13_14       0.0047        0.0047     0.0687    0.0000   0e+00
                eQQ Mean  eQQ Max
distance          0.0006   0.0177
gender            0.0000   0.0000
ses               0.0047   1.0000
attendance        0.8821  14.0000
ethnicity         0.0755   1.0000
ell               0.0047   1.0000
gd                0.0377   1.0000
ela_12_13         5.4575 182.0000
honors_ela_13_14  0.0000   0.0000

Percent Balance Improvement:
                Mean Diff.  eQQ Med  eQQ Mean  eQQ Max
distance           99.9390  99.5411   99.3071  89.4591
gender            100.0000   0.0000  100.0000 100.0000
ses                86.2271   0.0000   85.7143   0.0000
attendance         71.5052   0.0000    6.5000   0.0000
ethnicity        -270.6924   0.0000 -166.6667   0.0000
ell                83.0311   0.0000   83.3333   0.0000
gd                 98.4033 100.0000   93.6000   0.0000
ela_12_13        -173.3044 -50.0000  -23.4792  -4.5977
honors_ela_13_14  100.0000   0.0000  100.0000 100.0000

Sample sizes:
          Control Treated
All          1151     212
Matched       212     212
Unmatched     939       0
Discarded       0       0

> match.data=match.data(m1a.out)
> write.table(match.data, file="C:/sj330matchedELA.csv", sep=",", col.names = NA)
> Data4<-read.csv("C:/StJohn_Math2.csv")
> m2a.out <- matchit(incmath ~ gender + ses + attendance + ethnicity + ell + gd + math_12_13 + ho
nors_math_13_14, data = Data4, method = "optimal", distance = "logit", ratio = 1)
```

```
Warning message:
In fullmatch(d, min.controls = ratio, max.controls = ratio, omit.fraction = (n0 -  :
  Without 'data' argument the order of the match is not guaranteed
    to be the same as your original data.
> summary(m2a.out)

Call:
matchit(formula = incmath ~ gender + ses + attendance + ethnicity +
    ell + gd + math_12_13 + honors_math_13_14, data = Data4,
    method = "optimal", distance = "logit", ratio = 1)

Summary of balance for all data:
                  Means Treated Means Control SD Control Mean Diff eQQ Med
distance                 0.2242        0.1223     0.1125    0.1019  0.1065
gender                   0.5028        0.4948     0.5002    0.0080  0.0000
ses                      0.1160        0.0845     0.2782    0.0315  0.0000
attendance               4.5249        4.0897     6.9713    0.4351  0.0000
ethnicity                0.6464        0.4869     0.9066    0.1595  0.0000
ell                      0.0884        0.0497     0.2173    0.0387  0.0000
gd                       7.4144        6.8807     0.8176    0.5337  1.0000
math_12_13             294.0994      314.1507    32.8209  -20.0512 20.0000
honors_math_13_14        0.0331        0.1341     0.3410   -0.1010  0.0000
                  eQQ Mean  eQQ Max
distance            0.1032   0.1912
gender              0.0110   1.0000
ses                 0.0276   1.0000
attendance          0.5856  23.0000
ethnicity           0.1768   1.0000
ell                 0.0387   1.0000
gd                  0.5359   1.0000
math_12_13         22.5691 146.0000
honors_math_13_14   0.1050   1.0000


Summary of balance for matched data:
                  Means Treated Means Control SD Control Mean Diff eQQ Med
distance                 0.2242        0.2248     0.1108   -0.0006   6e-04
gender                   0.5028        0.5138     0.5012   -0.0110   0e+00
ses                      0.1160        0.1713     0.3778   -0.0552   0e+00
attendance               4.5249        4.4088     7.7078    0.1160   0e+00
ethnicity                0.6464        0.8343     1.0620   -0.1878   0e+00
ell                      0.0884        0.1215     0.3277   -0.0331   0e+00
gd                       7.4144        7.4696     0.6013   -0.0552   0e+00
math_12_13             294.0994      301.6961    32.7377   -7.5967   9e+00
honors_math_13_14        0.0331        0.0221     0.1474    0.0110   0e+00
                  eQQ Mean  eQQ Max
distance            0.0015   0.0513
gender              0.0110   1.0000
ses                 0.0552   1.0000
attendance          0.7569   6.0000
ethnicity           0.1878   1.0000
ell                 0.0331   1.0000
gd                  0.0773   1.0000
math_12_13         10.6685 146.0000
honors_math_13_14   0.0110   1.0000

Percent Balance Improvement:
                  Mean Diff.  eQQ Med  eQQ Mean eQQ Max
distance             99.3858  99.4697   98.5580 73.1462
gender              -38.3133   0.0000    0.0000  0.0000
ses                 -75.2404   0.0000 -100.0000  0.0000
attendance           73.3369   0.0000  -29.2453 73.9130
ethnicity           -17.7898   0.0000   -6.2500  0.0000
ell                  14.4454   0.0000   14.2857  0.0000
gd                   89.6481 100.0000   85.5670  0.0000
math_12_13           62.1137  55.0000   52.7295  0.0000
honors_math_13_14    89.0594   0.0000   89.4737  0.0000

Sample sizes:
```

R Console


```
          Control Treated
All          1148     181
Matched       181     181
Unmatched     967       0
Discarded       0       0

> match.data=match.data(m2a.out)
> write.table(match.data, file="C:/sj330matchedMath.csv", sep=",", col.names = NA)
> q()
>
```

Appendix D- ELA PSM Results

	study.id	Student.Dummy.ID	incela	gender	ses	attendance	ethnicity	ell	gd	ELA.13.14.Proficiency	ELA.13.14.Level	ela_13_14	ELA.13.14.New.Cut.Score	ELA.12.13.Proficiency	ELA.12.13.Level	ela_12_13	ELA.12.13.New.Cut.Score	Inclusion.ELA.13.14	Inclusion.ELA.12.13	Inclusion.Years.ELA	honors_ela_13_14	distance	weights	subclass
1	1	26	1	1	0	4	0	0	8	0	2	296	0	0	2	306	1	1	0	1	0	0.31	1	1
3	3	43	1	0	1	2	0	0	8	0	2	308	1	0	2	316	1	1	0	1	0	0.24	1	58
5	5	71	1	0	0	5	0	0	8	1	3	326	1	1	3	336	1	1	0	1	0	0.34	1	89
8	8	91	1	1	0	1	0	0	8	0	2	308	1	0	2	304	1	1	0	1	0	0.31	1	120
13	13	102	0	1	0	25	0	0	8	0	2	308	1	1	3	327	1	0	0	0	0	0.37	1	157
14	14	104	1	1	0	1	0	0	8	1	4	352	1	1	2	363	1	1	0	1	0	0.34	1	29
15	15	105	1	1	0	1	0	0	8	0	2	313	1	0	2	306	1	1	0	1	0	0.31	1	30
23	23	123	0	0	0	0	0	0	7	0	2	288	0	0	2	302	1	0	0	0	0	0.14	1	80
24	24	124	1	1	0	0	2	0	8	0	2	303	1	0	2	316	1	1	0	1	0	0.35	1	45
27	27	130	1	1	0	3	0	0	8	0	2	313	1	0	2	299	0	1	0	1	0	0.31	1	53
31	31	142	0	0	0	2	0	0	8	0	2	287	0	0	1	285	0	0	0	0	0	0.3	1	27
46	46	168	0	0	0	2	0	0	8	0	2	285	0	0	2	289	0	0	0	0	0	0.3	1	138
58	58	192	0	1	0	2	0	0	8	1	4	352	1	1	4	363	1	0	0	0	0	0.35	1	51
61	61	195	0	1	1	1	2	1	8	1	4	343	1	1	3	333	1	0	0	0	0	0.17	1	107
66	66	206	1	0	0	4	0	0	8	1	3	318	1	1	3	327	1	1	0	1	0	0.33	1	110
67	67	207	1	0	0	2	2	0	8	0	2	292	0	0	2	313	1	1	0	1	0	0.35	1	111
70	70	218	1	0	1	8	2	0	8	0	2	311	1	0	2	313	1	1	0	1	0	0.28	1	114
76	76	226	1	1	0	0	0	0	8	1	4	347	1	1	4	378	1	1	0	1	0	0.35	1	118
79	79	231	1	0	0	2	0	0	8	1	3	339	1	1	3	343	1	1	0	1	0	0.34	1	119
80	80	232	1	1	0	8	0	0	8	1	3	324	1	1	3	318	1	1	0	1	0	0.33	1	121
82	82	237	0	1	0	0	3	0	8	0	2	306	1	0	2	299	0	0	0	0	0	0.35	1	118
86	86	245	1	0	0	5	0	0	8	1	4	343	1	1	3	318	1	1	0	1	0	0.33	1	122
87	87	246	0	0	0	6	0	0	8	1	4	352	1	1	4	357	1	0	0	0	0	0.35	1	129
92	92	257	0	1	0	2	0	0	8	1	3	324	1	1	3	324	1	0	0	0	0	0.32	1	8
96	96	271	1	0	0	7	0	0	8	0	2	299	0	0	2	316	1	1	0	1	0	0.33	1	126
98	98	276	0	1	0	0	0	0	8	0	2	308	1	1	3	336	1	0	0	0	0	0.32	1	122
114	114	325	1	0	0	2	0	0	8	1	3	336	1	1	2	333	1	1	0	1	0	0.33	1	202
119	119	348	1	1	0	3	2	0	8	1	3	316	1	0	2	304	1	1	0	1	0	0.34	1	35
121	121	354	0	1	0	21	0	0	8	1	3	326	1	1	3	340	1	0	0	0	0	0.37	1	171
127	127	372	1	1	0	8	0	0	8	0	2	306	1	1	3	321	1	1	0	1	0	0.33	1	135
129	129	384	0	0	0	1	0	0	8	1	3	336	1	1	3	330	1	0	0	0	0	0.33	1	31
135	135	399	0	0	0	1	1	0	8	1	3	324	1	0	2	313	1	0	0	0	0	0.33	1	56
137	137	405	0	0	0	0	0	0	8	1	3	316	1	0	2	304	1	0	0	0	0	0.31	1	30
140	140	417	0	0	0	6	0	0	8	0	2	294	0	0	2	311	1	0	0	0	0	0.32	1	36
150	150	443	1	0	0	0	0	0	8	1	3	318	1	1	3	333	1	1	0	1	0	0.33	1	31
157	157	452	1	0	0	6	0	0	8	0	2	287	0	0	2	306	1	1	0	1	0	0.32	1	32
160	160	459	1	0	0	1	2	0	8	1	4	352	1	1	4	357	1	1	0	1	0	0.38	1	33
161	161	461	0	0	0	1	2	0	8	1	3	326	1	1	3	336	1	0	0	0	0	0.37	1	162
162	162	466	0	1	0	2	2	0	8	0	2	292	0	0	1	280	0	0	0	0	0	0.33	1	17
164	164	469	0	0	0	26	0	0	8	1	3	318	1	1	3	327	1	0	0	0	0	0.37	1	54
168	168	476	0	0	0	3	0	0	8	1	4	343	1	1	3	336	1	0	0	0	0	0.33	1	144
169	169	477	0	1	0	0	0	0	8	0	2	308	1	0	2	301	1	0	0	0	0	0.3	1	134
171	171	481	0	0	0	0	2	0	8	0	2	299	0	0	2	294	0	0	0	0	0	0.33	1	48
181	181	499	0	1	0	0	0	0	8	1	3	316	1	1	3	330	1	0	0	0	0	0.32	1	137
184	184	509	0	0	0	14	0	0	8	0	2	313	1	0	2	308	1	0	0	0	0	0.34	1	26
186	186	513	1	0	0	6	0	0	8	0	2	301	1	0	2	313	1	1	0	1	0	0.32	1	34
189	189	519	0	1	0	1	0	0	8	0	2	287	0	0	1	270	0	0	0	0	0	0.28	1	114
194	194	524	0	0	0	2	0	0	8	0	2	287	0	1	3	330	1	0	0	0	0	0.33	1	126
196	196	530	0	1	0	3	0	0	8	1	4	401	1	1	4	363	1	0	0	0	0	0.35	1	154
197	197	534	0	0	0	1	2	0	8	1	3	316	1	1	3	321	1	0	0	0	0	0.36	1	47
199	199	538	0	0	0	3	0	0	8	1	3	318	1	0	2	313	1	0	0	0	0	0.32	1	44
200	200	539	0	0	0	4	0	0	8	0	2	296	0	0	2	311	1	0	0	0	0	0.32	1	32
202	202	542	1	0	0	4	0	0	8	1	3	316	1	0	2	316	1	1	0	1	0	0.32	1	36
204	204	545	0	0	0	0	0	0	8	1	3	329	1	1	3	333	1	0	0	0	0	0.33	1	164

	study.id	Student.Dummy.ID	incela	gender	ses	attendance	ethnicity	ell	gd	ELA.13.14.Proficiency	ELA.13.14.Level	ela_13_14	ELA.13.14.New.Cut.Score	ELA.12.13.Proficiency	ELA.12.13.Level	ela_12_13	ELA.12.13.New.Cut.Score	Inclusion.ELA.13.14	Inclusion.ELA.12.13	Inclusion.Years.ELA	honors_ela_13_14	distance	weights	subclass
208	208	551	1	1	0	1	0	0	8	1	3	316	1	0	2	311	1	1	0	1	0	0.31	1	37
209	209	558	1	0	0	1	0	0	8	0	2	299	0	1	3	327	1	1	0	1	0	0.32	1	38
211	211	562	1	1	0	2	0	0	8	1	4	352	1	1	4	370	1	1	0	1	0	0.35	1	39
213	213	565	0	0	0	13	0	0	8	0	2	313	1	0	2	301	1	0	0	0	0	0.33	1	110
216	216	571	1	0	0	0	0	0	8	1	3	329	1	1	3	321	1	1	0	1	0	0.32	1	40
217	217	573	1	0	0	2	0	0	8	0	2	311	1	0	2	306	1	1	0	1	0	0.31	1	41
221	221	585	0	0	0	1	0	0	8	1	3	316	1	1	3	327	1	0	0	0	0	0.32	1	43
222	222	588	0	0	0	2	2	0	8	0	2	306	1	1	4	352	1	0	0	0	0	0.38	1	33
224	224	590	1	0	0	1	0	0	8	0	2	303	1	0	2	306	1	1	0	1	0	0.31	1	42
225	225	591	0	1	0	7	0	0	8	99	99	99	99	1	4	357	1	0	0	0	0	0.35	1	39
226	226	594	0	0	0	0	0	0	8	1	3	318	1	0	2	304	1	0	0	0	0	0.31	1	170
227	227	595	1	0	0	8	0	0	8	1	3	316	1	0	2	306	1	1	0	1	0	0.32	1	43
228	228	596	0	1	0	3	0	0	8	0	2	284	0	0	1	272	0	0	0	0	0	0.29	1	18
229	229	599	0	1	0	1	0	0	8	0	2	294	0	0	2	306	1	0	0	0	0	0.31	1	53
231	231	601	1	0	0	2	0	0	8	1	3	321	1	0	2	316	1	1	0	1	0	0.32	1	44
232	232	605	0	1	0	2	3	0	8	0	2	313	1	1	3	324	1	0	0	0	0	0.37	1	52
234	234	608	0	1	0	2	0	0	8	0	2	306	1	0	2	308	1	0	0	0	0	0.31	1	42
239	239	619	0	1	0	5	0	0	8	0	2	294	0	0	2	311	1	0	0	0	0	0.32	1	40
240	240	621	0	0	0	0	0	0	8	1	3	324	1	1	3	318	1	0	0	0	0	0.32	1	49
242	242	626	0	1	0	18	0	0	8	1	4	343	1	1	4	352	1	0	0	0	0	0.37	1	165
244	244	633	0	1	0	1	0	0	8	1	3	324	1	1	4	352	1	0	0	0	0	0.34	1	119
246	246	635	1	1	0	18	0	0	8	1	3	326	1	1	3	330	1	1	0	1	0	0.35	1	47
247	247	637	1	0	0	9	0	0	8	1	3	316	1	1	3	321	1	1	0	1	0	0.33	1	48
249	249	642	0	0	0	2	0	0	8	1	3	333	1	1	3	333	1	0	0	0	0	0.33	1	156
250	250	647	0	0	0	4	0	0	8	1	3	326	1	1	3	336	1	0	0	0	0	0.34	1	143
251	251	648	0	0	0	2	0	0	8	0	2	306	1	1	3	330	1	0	0	0	0	0.33	1	121
252	252	650	0	1	0	9	0	0	8	1	3	324	1	1	3	333	1	0	0	0	0	0.34	1	25
253	253	656	0	1	0	0	0	0	8	1	4	363	1	1	3	343	1	0	0	0	0	0.33	1	148
255	255	660	1	1	0	0	0	0	8	0	2	308	1	1	3	324	1	1	0	1	0	0.32	1	49
256	256	662	0	0	0	4	0	0	8	0	2	313	1	1	3	327	1	0	0	0	0	0.33	1	135
258	258	681	0	1	0	1	0	0	8	1	3	318	1	1	3	321	1	0	0	0	0	0.32	1	133
259	259	687	0	0	0	2	0	0	8	1	3	329	1	1	3	321	1	0	0	0	0	0.32	1	155
261	261	712	0	0	0	1	0	0	8	0	2	289	0	0	2	313	1	0	0	0	0	0.31	1	142
262	262	718	0	1	0	3	0	0	8	0	2	308	1	1	3	324	1	0	0	0	0	0.32	1	152
263	263	724	0	0	0	0	0	0	8	0	2	287	0	0	2	308	1	0	0	0	0	0.31	1	37
264	264	729	0	0	0	4	0	0	8	0	2	299	0	0	2	294	0	0	0	0	0	0.31	1	167
265	265	735	0	0	0	4	0	0	8	0	1	261	0	1	3	327	1	0	0	0	0	0.33	1	90
267	267	761	1	0	0	0	0	1	8	0	2	313	1	1	3	318	1	1	0	1	0	0.19	1	50
268	268	762	1	1	0	8	0	0	8	1	3	333	1	1	4	347	1	1	0	1	0	0.35	1	51
269	269	788	1	0	0	7	1	0	8	1	4	363	1	1	4	357	1	1	0	1	0	0.37	1	52
270	270	808	1	0	0	0	3	0	8	1	3	321	1	1	3	321	1	1	0	1	0	0.37	1	54
271	271	818	0	0	0	7	3	0	8	0	2	296	0	0	1	285	0	0	0	0	0	0.36	1	28
272	272	823	0	0	0	9	0	0	8	1	4	371	1	1	4	347	1	0	0	0	0	0.35	1	111
274	274	844	0	0	0	0	0	0	8	1	3	326	1	0	2	313	1	0	0	0	0	0.31	1	41
276	276	872	1	1	0	2	1	0	8	1	3	318	1	0	2	313	1	1	0	1	0	0.33	1	55
277	277	878	0	1	0	4	0	0	8	1	3	318	1	1	4	357	1	0	0	0	0	0.35	1	45
278	278	916	0	1	0	3	3	0	8	0	1	267	0	0	1	272	0	0	0	0	0	0.34	1	149
279	279	935	0	1	0	4	1	1	8	0	2	294	0	0	2	292	0	0	0	0	0	0.2	1	182
281	281	958	0	1	0	0	1	0	8	0	2	284	0	0	2	292	0	0	0	0	0	0.31	1	10
282	282	961	0	1	1	0	0	0	8	0	2	311	1	0	2	313	1	0	0	0	0	0.24	1	172
288	288	1111	1	1	0	4	1	0	8	0	2	313	1	0	2	311	1	1	0	1	0	0.33	1	56
298	298	1140	0	1	1	4	0	0	7	0	2	287	0	0	1	276	0	0	0	0	0	0.09	1	104
300	300	1148	1	1	0	5	0	0	7	0	2	312	1	0	2	302	1	1	0	1	0	0.14	1	59
308	308	1177	1	0	0	11	2	0	7	1	3	318	1	0	2	315	1	1	0	1	0	0.17	1	60

	study.id	Student.Dummy.ID	incela	gender	ses	attendance	ethnicity	ell	gd	ELA.13.14.Proficiency	ELA.13.14.Level	ela_13_14	ELA.13.14.New.Cut.Score	ELA.12.13.Proficiency	ELA.12.13.Level	ela_12_13	ELA.12.13.New.Cut.Score	Inclusion.ELA.13.14	Inclusion.ELA.12.13	Inclusion.Years.ELA	honors_ela_13_14	distance	weights	subclass
310	310	1181	0	1	0	0	2	0	7	0	2	310	1	1	3	328	1	0	0	0	0	0.16	1	185
313	313	1187	0	1	0	4	0	0	7	0	1	278	0	0	2	293	0	0	0	0	0	0.13	1	9
317	317	1201	1	1	0	9	0	0	7	1	4	366	1	1	4	354	1	1	0	1	0	0.16	1	61
332	332	1226	1	0	0	1	0	0	7	0	2	298	0	0	2	307	1	1	0	1	0	0.14	1	62
333	333	1227	1	0	0	0	0	0	7	0	2	291	0	0	2	288	0	1	0	1	0	0.13	1	63
334	334	1228	1	0	0	0	0	0	7	0	2	300	0	0	2	302	1	1	0	1	0	0.14	1	64
336	336	1234	1	1	0	2	0	0	7	1	3	328	1	0	2	295	0	1	0	1	0	0.13	1	65
337	337	1235	1	1	0	4	0	0	7	1	4	360	1	1	3	335	1	1	0	1	0	0.15	1	66
344	344	1246	1	0	0	0	0	0	7	0	2	312	1	0	2	285	0	1	0	1	0	0.13	1	67
346	346	1250	0	0	0	0	2	0	7	0	2	305	1	1	3	323	1	0	0	0	0	0.16	1	23
352	352	1260	0	1	0	0	2	0	7	1	3	318	1	0	2	317	1	0	0	0	0	0.16	1	20
353	353	1266	1	0	0	0	0	0	7	0	2	300	0	0	1	281	0	1	0	1	0	0.13	1	69
354	354	1268	1	0	0	0	2	0	7	0	2	288	0	0	2	297	0	1	0	1	0	0.15	1	70
355	355	1270	1	1	0	2	0	0	7	0	2	298	0	0	2	315	1	1	0	1	0	0.14	1	71
360	360	1277	1	1	0	8	0	0	7	0	2	312	1	1	3	320	1	1	0	1	0	0.15	1	72
370	370	1298	1	0	0	9	0	0	7	0	2	310	1	1	3	331	1	1	0	1	0	0.16	1	73
375	375	1304	0	0	0	0	0	0	7	0	2	303	1	0	2	300	0	0	0	0	0	0.13	1	64
380	380	1311	1	1	0	6	0	0	7	1	3	343	1	1	4	354	1	1	0	1	0	0.16	1	74
393	393	1331	0	0	0	5	1	0	7	0	1	278	0	0	1	265	0	0	0	0	0	0.14	1	3
394	394	1332	0	1	0	2	0	0	7	0	2	303	1	0	2	295	0	0	0	0	0	0.13	1	212
395	395	1334	0	0	0	0	0	0	7	0	2	300	0	0	2	305	1	0	0	0	0	0.14	1	86
406	406	1357	1	0	0	2	0	0	7	1	3	318	1	1	3	335	1	1	0	1	0	0.15	1	75
412	412	1369	1	0	0	61	0	0	7	1	3	330	1	0	2	305	1	1	0	1	0	0.21	1	76
429	429	1407	0	0	0	5	0	0	7	0	1	258	0	0	1	278	0	0	0	0	0	0.13	1	87
431	431	1411	0	0	0	1	1	0	7	1	3	340	1	1	4	359	1	0	0	0	0	0.17	1	21
437	437	1425	0	1	0	0	0	0	7	0	2	300	0	0	2	309	1	0	0	0	0	0.14	1	198
439	439	1427	1	1	0	3	0	0	7	1	3	336	1	1	4	341	1	1	0	1	0	0.15	1	77
444	444	1435	1	1	0	5	0	0	7	0	2	314	1	1	3	328	1	1	0	1	0	0.15	1	78
445	445	1437	1	1	0	4	0	0	7	0	2	312	1	0	2	293	0	1	0	1	0	0.13	1	80
446	446	1438	0	0	0	0	1	0	7	0	1	276	0	1	3	323	1	0	0	0	0	0.15	1	96
449	449	1443	0	0	0	0	0	0	7	0	2	312	1	0	2	295	0	0	0	0	0	0.13	1	65
451	451	1445	0	1	0	5	0	0	7	1	3	320	1	1	4	364	1	0	0	0	0	0.16	1	61
453	453	1448	1	1	0	6	0	0	7	1	3	325	1	0	2	317	1	1	0	1	0	0.15	1	81
456	456	1452	0	0	0	0	0	0	7	0	1	270	0	0	1	276	0	0	0	0	0	0.13	1	7
457	457	1454	0	1	0	1	0	0	7	0	2	314	1	0	2	307	1	0	0	0	0	0.14	1	186
460	460	1458	1	0	0	3	0	0	7	0	1	235	0	0	2	307	1	1	0	1	0	0.14	1	82
463	463	1461	0	1	0	8	1	0	7	1	3	320	1	0	2	315	1	0	0	0	0	0.16	1	108
468	468	1470	1	0	0	1	0	0	7	1	3	330	1	1	4	338	1	1	0	1	0	0.15	1	83
470	470	1475	1	0	0	4	0	0	7	1	3	320	1	1	3	323	1	1	0	1	0	0.15	1	84
473	473	1481	1	1	0	5	0	0	7	0	2	314	1	1	4	341	1	1	0	1	0	0.15	1	85
475	475	1483	0	1	0	1	2	0	7	0	2	303	1	1	3	335	1	0	0	0	0	0.17	1	97
478	478	1487	1	1	0	1	0	0	7	0	2	295	0	0	2	305	1	1	0	1	0	0.14	1	86
489	489	1503	1	0	0	0	0	0	7	0	1	265	0	0	2	295	0	1	0	1	0	0.13	1	87
496	496	1515	0	0	0	6	0	0	7	1	3	328	1	1	4	338	1	0	0	0	0	0.16	1	73
497	497	1518	1	1	0	2	2	0	7	0	2	314	1	0	2	290	0	1	0	1	0	0.15	1	88
498	498	1519	0	1	0	13	0	0	7	1	3	336	1	1	4	354	1	0	0	0	0	0.17	1	206
502	502	1526	1	0	0	2	0	0	7	1	3	328	1	1	4	345	1	1	0	1	0	0.15	1	91
503	503	1528	0	1	0	1	3	0	7	0	2	305	1	0	2	305	1	0	0	0	0	0.17	1	124
510	510	1538	1	1	0	1	0	0	7	1	3	336	1	1	4	345	1	1	0	1	0	0.15	1	92
515	515	1548	0	0	0	0	0	0	7	0	2	295	0	0	1	281	0	0	0	0	0	0.13	1	69
522	522	1562	1	0	0	2	0	0	7	99	99	99	99	0	2	295	0	1	0	1	0	0.13	1	93
523	523	1563	0	0	0	2	2	0	7	1	3	333	1	1	3	323	1	0	0	0	0	0.17	1	24
525	525	1574	0	1	0	6	0	0	7	99	99	99	99	1	4	341	1	0	0	0	0	0.15	1	95
529	529	1579	0	0	0	1	2	0	7	1	3	322	1	1	3	331	1	0	0	0	0	0.17	1	193

	study.id	Student.Dummy.ID	incela	gender	ses	attendance	ethnicity	ell	gd	ELA.13.14.Proficiency	ELA.13.14.Level	ela_13_14	ELA.13.14.New.Cut.Score	ELA.12.13.Proficiency	ELA.12.13.Level	ela_12_13	ELA.12.13.New.Cut.Score	Inclusion.ELA.13.14	Inclusion.ELA.12.13	Inclusion.Years.ELA	honors_ela_13_14	distance	weights	subclass
531	531	1583	1	0	0	13	0	0	7	0	1	270	0	99	99	99	99	1	0	1	0	0.09	1	94
534	534	1586	0	1	0	16	0	0	7	0	2	310	1	1	3	325	1	0	0	0	0	0.16	1	100
536	536	1589	1	0	0	5	0	0	7	1	3	325	1	1	4	338	1	1	0	1	0	0.15	1	95
539	539	1595	0	1	0	17	0	0	7	1	3	330	1	1	3	325	1	0	0	0	0	0.16	1	74
542	542	1605	0	1	0	28	0	0	7	0	2	305	1	1	3	323	1	0	0	0	0	0.17	1	15
543	543	1606	0	0	0	8	0	0	7	1	4	355	1	1	3	328	1	0	0	0	0	0.15	1	91
545	545	1609	0	1	0	0	0	0	7	1	4	347	1	1	4	364	1	0	0	0	0	0.16	1	102
546	546	1611	0	1	0	1	0	0	7	1	3	325	1	1	3	335	1	0	0	0	0	0.15	1	84
549	549	1615	1	0	0	20	0	0	7	0	1	283	0	0	2	295	0	1	0	1	0	0.15	1	96
553	553	1627	1	0	0	4	2	0	7	0	2	307	1	0	2	317	1	1	0	1	0	0.17	1	97
559	559	1637	0	0	0	41	0	0	7	1	3	322	1	1	3	323	1	0	0	0	0	0.19	1	50
561	561	1640	1	1	0	1	0	0	7	1	3	318	1	0	2	295	0	1	0	1	0	0.13	1	98
563	563	1647	1	1	0	3	0	0	7	1	3	328	1	0	2	315	1	1	0	1	0	0.14	1	99
564	564	1650	1	0	0	17	0	0	7	1	3	322	1	0	2	317	1	1	0	1	0	0.16	1	100
566	566	1665	0	1	0	5	0	0	7	0	2	303	1	1	3	335	1	0	0	0	0	0.15	1	92
570	570	1675	1	0	0	12	0	0	7	0	2	307	1	1	3	323	1	1	0	1	0	0.16	1	102
571	571	1676	0	1	0	1	0	0	7	1	3	333	1	1	4	349	1	0	0	0	0	0.15	1	106
574	574	1682	0	0	0	0	0	0	7	1	4	360	1	1	4	349	1	0	0	0	0	0.15	1	70
578	578	1689	1	0	0	0	0	0	7	0	1	278	0	0	2	293	0	1	0	1	0	0.13	1	103
579	579	1690	0	0	0	4	0	0	7	1	3	336	1	1	4	349	1	0	0	0	0	0.16	1	207
582	582	1707	1	0	0	1	1	1	7	1	4	355	1	1	4	345	1	1	0	1	0	0.09	1	104
583	583	1708	0	0	0	0	1	0	7	0	1	278	0	0	2	293	0	0	0	0	0	0.14	1	99
584	584	1709	1	1	0	8	2	0	7	1	4	351	1	1	4	404	1	1	0	1	0	0.21	1	105
587	587	1732	0	0	0	2	2	0	7	0	2	310	1	0	2	305	1	0	0	0	0	0.16	1	205
590	590	1751	0	1	0	19	0	0	7	0	2	298	0	0	2	309	1	0	0	0	0	0.16	1	190
591	591	1764	0	0	0	2	0	0	7	0	1	278	0	0	1	262	0	0	0	0	0	0.12	1	5
595	595	1784	0	0	0	4	0	0	7	0	2	288	0	0	2	307	1	0	0	0	0	0.14	1	176
599	599	1812	0	1	0	6	0	0	7	0	2	312	1	1	3	325	1	0	0	0	0	0.15	1	78
601	601	1820	0	0	0	12	1	0	7	0	1	276	0	0	2	283	0	0	0	0	0	0.15	1	75
606	606	1857	1	0	0	11	0	0	7	0	2	305	1	0	2	315	1	1	0	1	0	0.15	1	106
608	608	1862	0	1	0	18	4	0	7	1	3	320	1	1	3	325	1	0	0	0	0	0.21	1	105
611	611	1877	0	0	0	6	0	0	8	0	2	294	0	0	2	299	0	0	0	0	0	0.31	1	131
613	613	1882	0	0	0	0	0	0	8	1	3	324	1	0	2	306	1	0	0	0	0	0.31	1	150
614	614	1895	0	0	0	0	0	0	8	1	3	324	1	1	3	330	1	0	0	0	0	0.32	1	38
615	615	1915	0	0	0	13	0	0	7	0	1	262	0	0	1	270	0	0	0	0	0	0.14	1	16
616	616	1917	0	0	0	0	1	0	7	0	2	303	1	0	2	317	1	0	0	0	0	0.15	1	83
618	618	1944	0	0	0	3	0	0	7	0	2	307	1	0	2	307	1	0	0	0	0	0.14	1	82
619	619	1948	1	0	0	24	1	0	7	0	2	314	1	0	2	290	0	1	0	1	0	0.17	1	107
620	620	1968	0	0	0	5	1	0	7	1	3	333	1	1	3	323	1	0	0	0	0	0.16	1	187
621	621	1973	0	1	0	32	0	0	7	1	3	336	1	1	4	338	1	0	0	0	0	0.18	1	199
624	624	2029	0	1	0	1	0	0	7	99	99	99	99	1	4	338	1	0	0	0	0	0.15	1	72
625	625	2042	0	0	0	3	0	0	7	0	2	305	1	1	3	335	1	0	0	0	0	0.15	1	88
626	626	2047	1	0	0	5	1	0	7	0	2	312	1	0	2	317	1	1	0	1	0	0.16	1	108
629	629	2108	1	0	0	1	1	0	8	0	2	284	0	0	2	308	1	1	0	1	0	0.33	1	109
630	630	2110	0	0	0	1	0	0	7	1	4	360	1	1	4	341	1	0	0	0	0	0.15	1	77
631	631	2121	0	1	0	4	2	0	7	0	2	314	1	0	2	305	1	0	0	0	0	0.16	1	184
637	637	2187	0	0	1	4	3	0	7	0	2	298	0	1	3	331	1	0	0	0	0	0.13	1	93
654	654	2223	0	1	0	38	0	0	6	1	4	340	1	1	3	339	1	0	0	0	0	0.08	1	189
703	703	2291	1	1	0	2	0	0	6	0	2	313	1	0	2	301	1	1	0	1	0	0.05	1	115
708	708	2297	1	1	0	5	0	0	6	1	3	327	1	0	2	308	1	1	0	1	0	0.06	1	116
719	719	2313	1	0	0	1	0	0	6	1	3	322	1	0	2	310	1	1	0	1	0	0.05	1	117
757	757	2384	0	0	0	5	0	0	7	0	1	276	0	0	1	276	0	0	0	0	0	0.13	1	103
829	829	2487	0	0	0	5	4	0	6	1	4	347	1	1	4	359	1	0	0	0	0	0.09	1	94
864	864	2543	1	0	0	0	0	0	6	1	3	327	1	0	2	312	1	1	0	1	0	0.05	1	123

	study.id	Student.Dummy.ID	incela	gender	ses	attendance	ethnicity	ell	gd	ELA.13.14.Proficiency	ELA.13.14.Level	ela_13_14	ELA.13.14.New.Cut.Score	ELA.12.13.Proficiency	ELA.12.13.Level	ela_12_13	ELA.12.13.New.Cut.Score	Inclusion.ELA.13.14	Inclusion.ELA.12.13	Inclusion.Years.ELA	honors_ela_13_14	distance	weights	subclass
890	890	2581	0	0	1	1	0	0	8	0	2	308	1	0	2	313	1	0	0	0	0	0.24	1	22
957	957	2691	1	1	0	6	0	0	6	1	3	320	1	1	3	320	1	1	0	1	0	0.06	1	125
994	994	2772	1	1	0	0	1	1	6	1	3	325	1	1	3	339	1	1	0	1	0	0.03	1	127
996	996	2777	0	0	0	0	0	0	7	1	3	322	1	1	4	349	1	0	0	0	0	0.15	1	210
1001	1001	2799	1	1	0	0	2	0	7	0	2	293	0	0	2	288	0	1	0	1	0	0.15	1	112
1017	1017	2870	0	1	0	2	0	0	8	1	4	380	1	1	4	370	1	0	0	0	0	0.35	1	169
1024	1024	2890	0	0	0	1	0	0	7	0	2	305	1	0	2	307	1	0	0	0	0	0.14	1	62
1029	1029	2902	0	1	0	1	0	0	7	1	3	336	1	1	4	338	1	0	0	0	0	0.15	1	195
1035	1035	2941	0	1	1	0	2	0	7	0	2	287	0	0	2	305	1	0	0	0	0	0.11	1	183
1038	1038	2958	1	1	1	5	3	0	6	0	2	308	1	0	2	315	1	1	0	1	0	0.05	1	136
1040	1040	2965	0	1	0	0	2	1	8	0	2	306	1	0	2	304	1	0	0	0	0	0.21	1	76
1042	1042	2979	0	1	0	2	0	0	7	0	2	307	1	1	3	323	1	0	0	0	0	0.14	1	14
1046	1046	2999	1	0	0	0	2	0	7	0	2	305	1	0	2	305	1	1	0	1	0	0.16	1	147
1049	1049	3012	0	0	0	13	0	0	7	1	3	318	1	1	3	323	1	0	0	0	0	0.16	1	101
1050	1050	3013	0	1	0	3	2	0	7	0	2	295	0	0	2	317	1	0	0	0	0	0.16	1	178
1051	1051	3038	0	1	0	2	1	0	8	0	2	292	0	0	2	299	0	0	0	0	0	0.32	1	139
1054	1054	3063	0	1	0	6	0	0	7	1	3	322	1	0	2	317	1	0	0	0	0	0.15	1	81
1055	1055	3065	0	1	0	6	0	0	7	1	3	336	1	0	2	317	1	0	0	0	0	0.15	1	6
1057	1057	3087	0	0	0	3	0	0	7	0	2	293	0	0	2	309	1	0	0	0	0	0.14	1	175
1060	1060	3271	0	1	0	7	0	0	8	0	2	292	0	0	1	285	0	0	0	0	0	0.3	1	120
1063	1063	3366	0	1	1	2	2	1	6	1	4	347	1	1	3	330	1	0	0	0	0	0.03	1	158
1064	1064	3371	0	0	0	1	0	0	8	1	3	316	1	1	3	327	1	0	0	0	0	0.32	1	34
1069	1069	3415	0	1	0	0	0	0	7	1	3	320	1	1	3	331	1	0	0	0	0	0.14	1	4
1070	1070	3426	0	1	0	0	0	0	8	0	2	301	1	0	2	304	1	0	0	0	0	0.3	1	174
1072	1072	3464	0	1	0	0	0	0	8	1	4	343	1	1	4	363	1	0	0	0	0	0.34	1	19
1073	1073	3465	0	1	0	1	0	0	7	1	3	322	1	0	2	290	0	0	0	0	0	0.13	1	67
1074	1074	3487	0	0	0	2	1	0	8	1	3	329	1	1	3	327	1	0	0	0	0	0.34	1	151
1077	1077	3932	0	1	0	3	0	0	7	99	99	99	99	0	2	309	1	0	0	0	0	0.14	1	59
1078	1078	3948	1	0	1	8	2	1	6	0	1	269	0	0	2	296	0	1	0	1	0	0.02	1	158
1079	1079	3954	0	0	1	7	1	0	8	1	3	336	1	1	3	330	1	0	0	0	0	0.28	1	79
1084	1084	4064	0	0	0	1	2	0	7	0	2	307	1	0	2	288	0	0	0	0	0	0.15	1	66
1086	1086	4077	0	1	0	1	1	0	8	1	3	333	1	1	3	324	1	0	0	0	0	0.34	1	191
1087	1087	4108	0	0	0	1	0	0	7	0	1	276	0	0	2	288	0	0	0	0	0	0.13	1	98
1088	1088	4115	0	1	0	30	1	0	7	1	3	320	1	0	2	305	1	0	0	0	0	0.18	1	192
1089	1089	4126	0	0	0	0	0	0	7	1	3	320	1	1	4	341	1	0	0	0	0	0.15	1	208
1090	1090	4130	1	0	0	3	0	0	8	1	4	363	1	1	4	363	1	1	0	1	0	0.35	1	169
1096	1096	4165	0	1	0	0	1	0	8	1	3	336	1	1	3	340	1	0	0	0	0	0.34	1	161
1099	1099	4219	0	1	0	1	0	0	7	0	2	293	0	0	2	315	1	0	0	0	0	0.14	1	204
1101	1101	4281	0	1	0	1	3	0	8	1	3	326	1	1	3	330	1	0	0	0	0	0.38	1	146
1104	1104	4330	1	1	0	1	0	0	7	1	3	325	1	0	2	300	0	1	0	1	0	0.13	1	180
1106	1106	4338	0	0	0	2	0	0	7	1	3	330	1	0	2	305	1	0	0	0	0	0.14	1	179
1108	1108	4484	0	1	0	0	3	0	7	0	1	278	0	0	2	283	0	0	0	0	0	0.16	1	147
1109	1109	4487	1	0	0	1	1	0	8	0	2	313	1	1	3	318	1	1	0	1	0	0.34	1	191
1110	1110	4831	0	0	0	0	1	1	8	0	2	306	1	0	2	299	0	0	0	0	0	0.2	1	201
1111	1111	4838	0	0	0	2	0	0	7	1	3	320	1	1	3	323	1	0	0	0	0	0.15	1	188
1112	1112	4841	0	0	0	6	0	0	7	0	1	283	0	0	2	317	1	0	0	0	0	0.15	1	112
1114	1114	4946	0	0	0	1	1	0	8	0	2	287	0	1	3	333	1	0	0	0	0	0.35	1	29
1121	1121	5027	0	1	0	1	0	0	7	1	3	325	1	0	2	317	1	0	0	0	0	0.14	1	71
1122	1122	5028	0	0	0	1	0	0	7	0	2	310	1	0	2	302	1	0	0	0	0	0.14	1	209
1123	1123	5032	0	0	0	2	0	0	8	1	3	339	1	1	3	330	1	0	0	0	0	0.33	1	109
1125	1125	5053	0	0	0	1	2	0	7	1	3	336	1	1	4	345	1	0	0	0	0	0.17	1	60
1127	1127	5070	0	1	0	2	0	0	8	1	3	318	1	0	2	313	1	0	0	0	0	0.31	1	173
1129	1129	5104	0	0	0	2	1	0	8	0	2	306	1	0	2	311	1	0	0	0	0	0.33	1	153
1130	1130	5171	0	1	1	0	2	1	8	0	2	301	1	0	2	299	0	0	0	0	0	0.15	1	211

	study.id	Student.Dummy.ID	incela	gender	ses	attendance	ethnicity	ell	gd	ELA.13.14.Proficiency	ELA.13.14.Level	ela_13_14	ELA.13.14.New.Cut.Score	ELA.12.13.Proficiency	ELA.12.13.Level	ela_12_13	ELA.12.13.New.Cut.Score	Inclusion.ELA.13.14	Inclusion.ELA.12.13	Inclusion.Years.ELA	honors_ela_13_14	distance	weights	subclass
1134	1134	5699	0	0	0	2	0	0	7	1	3	330	1	1	4	341	1	0	0	0	0	0.15	1	68
1136	1136	5735	0	0	0	0	0	0	7	0	2	312	1	0	2	312	1	0	0	0	0	0.14	1	181
1140	1140	5815	0	1	0	41	3	0	7	0	2	312	1	1	3	323	1	0	0	0	0	0.23	1	11
1142	1142	5822	0	1	1	0	0	0	7	1	3	320	1	1	3	335	1	0	0	0	0	0.11	1	57
1143	1143	5825	0	0	0	0	0	0	8	1	4	357	1	1	3	330	1	0	0	0	1	0.03	1	160
1145	1145	5857	1	1	0	2	0	0	8	1	4	363	1	1	4	352	1	1	0	1	0	0.34	1	2
1149	1149	5902	1	1	1	5	2	0	7	1	3	328	1	0	2	309	1	1	0	1	0	0.12	1	13
1151	1151	5911	0	1	0	0	2	0	7	0	2	307	1	0	2	305	1	0	0	0	0	0.15	1	85
1152	1152	5928	0	0	0	0	1	0	8	1	3	318	1	0	2	306	1	0	0	0	0	0.33	1	163
1157	1157	6011	0	0	0	2	1	0	7	1	3	340	1	0	2	312	1	0	0	0	0	0.15	1	194
1161	1161	6099	1	1	0	0	3	0	7	0	1	283	0	0	2	307	1	1	0	1	0	0.17	1	24
1163	1163	6138	0	1	0	0	2	0	8	0	2	294	0	0	2	304	1	0	0	0	0	0.34	1	2
1166	1166	6187	0	1	0	1	0	0	7	0	2	293	0	0	2	309	1	0	0	0	0	0.14	1	132
1168	1168	6268	0	1	0	0	0	0	7	1	3	336	1	1	3	328	1	0	0	0	0	0.14	1	128
1178	1178	6867	0	0	1	4	0	0	8	1	3	316	1	0	2	306	1	0	0	0	0	0.24	1	58
1186	1186	6955	0	1	0	48	0	0	7	0	1	273	0	0	2	297	0	0	0	0	0	0.19	1	200
1187	1187	6987	0	1	0	4	0	0	8	1	3	316	1	0	2	287	0	0	0	0	0	0.3	1	168
1189	1189	7006	0	0	0	1	0	0	7	0	2	300	0	0	2	297	0	0	0	0	0	0.13	1	180
1191	1191	7014	1	1	0	2	3	0	7	1	3	333	1	0	2	317	1	1	0	1	0	0.17	1	46
1192	1192	7062	0	0	0	1	1	0	8	1	4	357	1	1	3	330	1	0	0	0	0	0.34	1	35
1193	1193	7064	0	1	0	2	0	0	7	1	4	351	1	1	4	338	1	0	0	0	0	0.15	1	203
1194	1194	7065	0	0	0	0	0	0	7	1	3	330	1	1	4	341	1	0	0	0	0	0.15	1	177
1195	1195	7069	1	0	1	1	1	0	7	1	3	333	1	0	2	300	0	1	0	1	0	0.11	1	57
1199	1199	7233	1	1	0	4	0	0	7	1	3	340	1	1	4	341	1	1	0	1	0	0.15	1	68
1201	1201	7257	0	0	1	1	2	0	7	1	3	330	1	0	2	315	1	0	0	0	0	0.12	1	13
1203	1203	7547	0	0	0	5	3	0	8	1	3	326	1	0	2	311	1	0	0	0	0	0.37	1	166
1205	1205	7671	0	1	0	6	0	0	8	0	2	303	1	0	2	299	0	0	0	0	0	0.31	1	1
1207	1207	7735	1	0	1	0	1	0	8	0	2	311	1	1	4	347	1	1	0	1	0	0.27	1	79
1209	1209	7750	1	1	0	7	0	0	8	1	3	321	1	1	3	324	1	1	0	1	0	0.33	1	90
1210	1210	7760	0	0	0	2	1	0	8	1	3	324	1	1	3	318	1	0	0	0	0	0.34	1	89
1212	1212	7796	0	0	0	2	2	0	8	0	2	303	1	1	3	324	1	0	0	0	0	0.36	1	141
1214	1214	7811	0	0	0	0	0	0	6	0	2	301	1	0	1	287	0	0	0	0	0	0.05	1	136
1215	1215	7814	0	0	0	45	0	0	8	1	3	316	1	1	3	327	1	0	0	0	0	0.41	1	12
1216	1216	7823	0	1	0	7	0	0	6	0	2	290	0	0	2	292	0	0	0	0	0	0.05	1	123
1219	1219	7858	1	1	0	6	0	0	7	1	3	318	1	1	4	349	1	1	0	1	0	0.16	1	101
1221	1221	7884	0	0	0	0	0	0	6	0	2	310	1	0	2	312	1	0	0	0	0	0.05	1	117
1223	1223	7899	0	1	0	4	0	0	6	0	2	310	1	0	2	292	0	0	0	0	0	0.05	1	115
1224	1224	7908	0	1	0	4	1	0	8	1	3	329	1	0	2	308	1	0	0	0	0	0.33	1	55
1226	1226	7922	0	1	0	3	0	0	7	0	2	303	1	0	2	283	0	0	0	0	0	0.13	1	63
1228	1228	7935	0	0	0	5	0	0	8	1	4	357	1	0	2	313	1	0	0	0	0	0.32	1	140
1233	1233	7961	0	1	0	4	3	0	8	1	3	321	1	0	2	296	0	0	0	0	0	0.36	1	130
1240	1240	8213	0	0	0	1	3	0	6	1	4	361	1	1	4	354	1	0	0	0	0	0.08	1	196
1241	1241	8268	0	1	0	7	0	0	8	1	3	329	1	1	3	327	1	0	0	0	0	0.33	1	145
1242	1242	8269	0	1	0	10	0	0	7	1	3	328	1	1	3	331	1	0	0	0	0	0.16	1	197
1243	1243	8305	0	1	0	1	2	0	8	0	2	311	1	0	2	289	0	0	0	0	0	0.33	1	202
1247	1247	8369	0	1	0	3	0	0	6	1	4	347	1	1	3	330	1	0	0	0	0	0.06	1	125
1249	1249	8713	0	1	0	0	2	0	6	0	2	295	0	99	99	99	99	0	0	0	0	0.03	1	127
1251	1251	8773	0	1	1	11	2	0	8	0	2	303	1	99	99	99	99	0	0	0	0	0.17	1	46
1252	1252	8774	0	0	1	11	2	0	8	1	3	316	1	99	99	99	99	0	0	0	0	0.17	1	113
1253	1253	8776	1	1	0	4	3	0	7	0	2	300	0	0	2	317	1	1	0	1	0	0.18	1	113
1254	1254	8977	1	0	0	7	1	0	7	1	3	336	1	1	3	335	1	1	0	1	0	0.17	1	124
1260	1260	9271	0	0	0	0	0	0	6	1	4	361	1	1	3	322	1	0	0	0	0	0.06	1	116
1261	1261	9276	1	0	0	1	0	0	7	1	3	333	1	1	3	320	1	1	0	1	0	0.14	1	128
1262	1262	####	0	1	0	2	0	0	8	1	3	318	1	1	3	336	1	0	0	0	0	0.33	1	159

	study.id	Student.Dummy.ID	incela	gender	ses	attendance	ethnicity	ell	gd	ELA.13.14.Proficiency	ELA.13.14.Level	ela_13_14	ELA.13.14.New.Cut.Score	ELA.12.13.Proficiency	ELA.12.13.Level	ela_12_13	ELA.12.13.New.Cut.Score	Inclusion.ELA.13.14	Inclusion.ELA.12.13	Inclusion.Years.ELA	honors_ela_13_14	distance	weights	subclass
1264	1264	46	1	0	0	3	1	0	8	1	3	326	1	1	3	340	1	0	1	1	0	0.35	1	129
1265	1265	86	1	1	0	0	2	0	8	0	2	311	1	1	3	333	1	1	1	2	0	0.36	1	130
1266	1266	106	1	1	0	0	0	0	8	0	2	303	1	1	3	321	1	0	1	1	0	0.31	1	131
1267	1267	121	1	0	0	0	0	0	7	0	2	300	0	0	2	309	1	0	1	1	0	0.14	1	132
1268	1268	137	1	1	0	1	0	0	8	0	2	306	1	1	3	321	1	0	1	1	0	0.32	1	133
1269	1269	141	1	0	0	1	0	0	8	0	2	289	0	0	2	294	0	1	1	2	0	0.3	1	134
1270	1270	143	1	0	0	1	0	0	8	0	2	306	1	1	3	321	1	0	1	1	0	0.32	1	137
1271	1271	208	1	1	0	0	0	0	8	0	2	289	0	0	2	301	1	0	1	1	0	0.3	1	138
1272	1272	209	1	1	0	5	0	0	8	1	4	352	1	0	2	316	1	0	1	1	0	0.32	1	139
1273	1273	225	1	1	0	9	0	0	8	0	2	292	0	0	2	308	1	0	1	1	0	0.32	1	140
1274	1274	264	1	1	0	1	2	0	8	1	3	321	1	1	3	333	1	0	1	1	0	0.36	1	141
1275	1275	267	1	1	0	1	0	0	8	1	3	316	1	1	3	318	1	0	1	1	0	0.31	1	142
1276	1276	284	1	1	0	0	0	0	8	1	4	347	1	1	4	352	1	1	1	2	0	0.34	1	143
1277	1277	288	1	1	0	8	0	0	8	1	3	329	1	1	3	327	1	0	1	1	0	0.33	1	144
1278	1278	304	1	0	0	0	0	0	8	1	3	336	1	1	3	343	1	0	1	1	0	0.33	1	145
1279	1279	306	1	1	0	24	0	0	8	1	3	321	1	1	3	343	1	1	1	2	0	0.38	1	146
1280	1280	336	1	1	0	8	0	0	8	1	3	318	1	1	3	321	1	0	1	1	0	0.33	1	148
1281	1281	343	1	1	0	0	1	0	8	1	3	316	1	1	3	333	1	0	1	1	0	0.34	1	149
1282	1282	371	1	1	0	2	0	0	8	0	2	306	1	0	2	306	1	0	1	1	0	0.31	1	150
1283	1283	397	1	1	0	14	0	0	8	0	2	306	1	1	3	324	1	0	1	1	0	0.34	1	151
1284	1284	404	1	0	0	0	0	0	8	1	3	336	1	1	3	327	1	0	1	1	0	0.32	1	152
1285	1285	409	1	0	0	0	1	0	8	1	3	321	1	0	2	316	1	0	1	1	0	0.33	1	153
1286	1286	413	1	0	0	17	0	0	8	0	2	303	1	1	3	318	1	0	1	1	0	0.35	1	154
1287	1287	416	1	1	0	7	0	0	8	0	2	311	1	0	2	313	1	0	1	1	0	0.32	1	155
1288	1288	462	1	0	0	1	0	0	8	1	3	321	1	1	3	336	1	0	1	1	0	0.33	1	156
1289	1289	529	1	0	0	0	2	0	8	1	3	326	1	1	3	340	1	0	1	1	0	0.37	1	157
1290	1290	553	1	0	0	1	0	0	8	1	4	343	1	1	3	333	1	0	1	1	0	0.33	1	159
1291	1291	560	1	1	0	1	0	0	8	1	3	329	1	1	3	336	1	0	1	1	1	0.03	1	160
1292	1292	570	1	0	0	3	0	0	8	1	3	326	1	1	4	352	1	0	1	1	0	0.34	1	161
1293	1293	581	1	0	0	3	2	0	8	0	2	296	0	1	3	330	1	1	1	2	0	0.37	1	162
1294	1294	609	1	0	0	5	0	0	8	1	3	316	1	1	3	318	1	0	1	1	0	0.33	1	163
1295	1295	644	1	0	0	0	0	0	8	1	3	339	1	1	3	333	1	0	1	1	0	0.33	1	164
1296	1296	649	1	1	0	24	0	0	8	0	2	301	1	1	3	336	1	0	1	1	0	0.37	1	165
1297	1297	682	1	1	0	30	0	0	8	0	2	292	0	1	3	324	1	0	1	1	0	0.37	1	166
1298	1298	684	1	1	0	0	0	0	8	1	3	329	1	0	2	311	1	0	1	1	0	0.31	1	167
1299	1299	690	1	0	0	0	0	0	8	0	2	308	1	0	2	296	0	0	1	1	0	0.3	1	168
1300	1300	697	1	1	0	2	0	0	8	1	3	333	1	0	2	304	1	1	1	2	0	0.31	1	170
1301	1301	731	1	1	0	2	2	0	8	1	3	324	1	1	3	340	1	0	1	1	0	0.37	1	171
1302	1302	746	1	1	1	3	0	0	8	0	2	306	1	0	2	308	1	0	1	1	0	0.24	1	172
1303	1303	837	1	1	0	4	0	0	8	0	2	296	0	0	2	308	1	0	1	1	0	0.31	1	173
1304	1304	839	1	0	0	2	0	0	8	99	99	99	99	0	2	294	0	1	1	2	0	0.3	1	174
1305	1305	1118	1	0	0	0	0	0	7	1	3	330	1	1	3	320	1	0	1	1	0	0.14	1	175
1306	1306	1124	1	0	0	1	0	0	7	0	2	314	1	0	2	317	1	1	1	2	0	0.14	1	176
1307	1307	1145	1	0	0	0	1	0	7	99	99	99	99	0	2	315	1	0	1	1	0	0.15	1	177
1308	1308	1175	1	1	0	13	0	0	7	1	4	366	1	1	4	341	1	0	1	1	0	0.16	1	178
1309	1309	1179	1	0	0	3	0	0	7	1	3	325	1	0	2	300	0	0	1	1	0	0.14	1	179
1310	1310	1193	1	1	0	4	0	0	7	0	1	281	0	0	2	307	1	0	1	1	0	0.14	1	181
1311	1311	1205	1	1	0	1	4	0	7	1	4	355	1	1	4	345	1	0	1	1	0	0.2	1	182
1312	1312	1225	1	1	1	4	2	0	7	1	3	318	1	0	2	295	0	0	1	1	0	0.11	1	183
1313	1313	1231	1	0	0	4	0	0	7	1	3	336	1	1	4	354	1	1	1	2	0	0.16	1	184
1314	1314	1237	1	1	0	4	2	0	7	1	3	320	1	1	3	323	1	0	1	1	0	0.17	1	185
1315	1315	1265	1	0	0	0	0	0	7	1	3	320	1	0	2	302	1	0	1	1	0	0.14	1	186
1316	1316	1271	1	0	0	1	1	0	7	0	2	314	1	1	3	335	1	0	1	1	0	0.16	1	187
1317	1317	1292	1	0	0	5	0	0	7	0	2	314	1	0	2	315	1	0	1	1	0	0.15	1	188

	study.id	Student.Dummy.ID	incela	gender	ses	attendance	ethnicity	ell	gd	ELA.13.14.Proficiency	ELA.13.14.Level	ela_13_14	ELA.13.14.New.Cut.Score	ELA.12.13.Proficiency	ELA.12.13.Level	ela_12_13	ELA.12.13.New.Cut.Score	Inclusion.ELA.13.14	Inclusion.ELA.12.13	Inclusion.Years.ELA	honors_ela_13_14	distance	weights	subclass
1318	1318	1302	1	0	0	1	1	1	7	0	1	273	0	0	2	290	0	0	1	1	0	0.08	1	189
1319	1319	1320	1	1	0	2	0	0	7	1	3	330	1	1	4	359	1	0	1	1	0	0.16	1	190
1320	1320	1364	1	1	0	27	0	0	7	0	2	307	1	1	4	338	1	0	1	1	0	0.18	1	192
1321	1321	1377	1	1	0	24	0	0	7	0	2	305	1	1	3	320	1	1	1	2	0	0.17	1	193
1322	1322	1399	1	0	0	12	0	0	7	0	2	303	1	0	2	309	1	0	1	1	0	0.15	1	194
1323	1323	1436	1	0	0	0	0	0	7	1	4	355	1	1	3	335	1	1	1	2	0	0.15	1	195
1324	1324	1484	1	1	0	3	1	1	7	0	2	307	1	0	2	285	0	1	1	2	0	0.08	1	196
1325	1325	1533	1	0	0	6	0	0	7	1	4	347	1	1	3	335	1	0	1	1	0	0.15	1	197
1326	1326	1543	1	0	0	6	0	0	7	1	3	328	1	0	2	285	0	0	1	1	0	0.14	1	198
1327	1327	1546	1	0	0	19	3	0	7	0	2	307	1	0	2	293	0	0	1	1	0	0.19	1	199
1328	1328	1558	1	0	0	1	4	0	7	0	2	307	1	1	3	323	1	0	1	1	0	0.19	1	200
1329	1329	1559	1	0	0	52	0	0	7	0	2	303	1	0	2	295	0	0	1	1	0	0.19	1	201
1330	1330	1573	1	1	0	3	0	0	7	1	3	320	1	1	3	335	1	0	1	1	0	0.15	1	203
1331	1331	1575	1	0	0	6	0	0	7	0	2	312	1	0	2	295	0	0	1	1	0	0.14	1	204
1332	1332	1582	1	1	0	24	0	0	7	0	2	310	1	0	2	300	0	0	1	1	0	0.16	1	205
1333	1333	1599	1	1	0	14	1	0	7	1	3	330	1	1	3	323	1	0	1	1	0	0.17	1	206
1334	1334	1622	1	1	0	0	0	0	7	1	3	340	1	1	4	364	1	0	1	1	0	0.16	1	207
1335	1335	1623	1	1	0	2	0	0	7	1	3	320	1	1	4	338	1	0	1	1	0	0.15	1	208
1336	1336	1629	1	1	0	1	0	0	7	1	3	325	1	0	2	307	1	0	1	1	0	0.14	1	209
1337	1337	1646	1	1	0	3	0	0	7	1	3	340	1	1	4	345	1	0	1	1	0	0.15	1	210
1338	1338	1655	1	1	0	0	0	0	7	1	3	322	1	1	4	354	1	0	1	1	0	0.15	1	211
1339	1339	1660	1	1	0	3	0	0	7	0	1	281	0	0	2	295	0	1	1	2	0	0.13	1	212
1340	1340	1667	1	0	0	1	0	0	7	0	1	278	0	0	2	300	0	1	1	2	0	0.14	1	3
1341	1341	1745	1	1	0	3	0	0	7	0	2	312	1	1	3	320	1	0	1	1	0	0.14	1	4
1342	1342	1793	1	0	0	0	0	0	7	0	2	293	0	0	1	273	0	0	1	1	0	0.13	1	5
1343	1343	1836	1	0	0	0	0	0	7	1	3	320	1	1	3	328	1	0	1	1	0	0.14	1	6
1344	1344	1930	1	0	1	5	2	0	7	0	2	312	1	1	3	328	1	0	1	1	0	0.13	1	7
1345	1345	2194	1	1	0	1	1	0	8	0	2	311	1	0	2	301	1	0	1	1	0	0.32	1	8
1346	1346	3100	1	0	0	1	0	0	7	0	2	291	0	0	2	295	0	1	1	2	0	0.13	1	9
1347	1347	4047	1	0	0	1	0	0	8	1	4	352	1	0	2	311	1	0	1	1	0	0.31	1	10
1348	1348	4229	1	0	0	7	1	1	8	1	3	339	1	1	3	343	1	1	1	2	0	0.23	1	11
1349	1349	4810	1	1	0	11	4	0	8	1	3	324	1	1	4	347	1	0	1	1	0	0.43	1	12
1350	1350	4981	1	0	0	1	0	0	7	1	3	333	1	1	3	320	1	0	1	1	0	0.14	1	14
1351	1351	5103	1	0	0	0	2	0	7	1	3	318	1	1	4	341	1	0	1	1	0	0.17	1	15
1352	1352	5110	1	0	0	2	0	0	7	0	2	288	0	0	2	300	0	1	1	2	0	0.14	1	16
1353	1353	5213	1	1	0	2	0	0	8	1	4	357	1	1	3	333	1	0	1	1	0	0.33	1	17
1354	1354	5903	1	1	1	1	2	0	8	1	3	316	1	1	3	340	1	0	1	1	0	0.28	1	18
1355	1355	6888	1	0	0	0	1	0	8	1	4	352	1	1	3	333	1	0	1	1	0	0.34	1	19
1356	1356	7195	1	1	0	0	1	0	7	0	2	307	1	1	4	341	1	0	1	1	0	0.16	1	20
1357	1357	7924	1	1	0	5	3	0	7	0	2	287	0	0	2	300	0	0	1	1	0	0.17	1	21
1358	1358	7926	1	1	1	8	0	0	8	0	2	292	0	0	2	296	0	0	1	1	0	0.24	1	22
1359	1359	7942	1	1	0	0	3	0	7	1	3	318	1	0	2	302	1	0	1	1	0	0.16	1	23
1360	1360	8792	1	1	0	8	0	0	8	1	3	318	1	1	3	336	1	1	1	2	0	0.34	1	25
1361	1361	9099	1	0	0	10	0	0	8	1	3	326	1	1	3	318	1	1	1	2	0	0.33	1	26
1362	1362	9119	1	1	1	24	2	0	8	0	1	272	0	0	2	295	0	1	1	2	0	0.3	1	27
1363	1363	9201	1	0	0	1	3	0	8	0	2	306	1	0	2	301	1	1	1	2	0	0.36	1	28

Appendix E- Mathematics PSM Results

	study.id	Student.Dummy.ID	incmath	gender	ses	attendance	ethnicity	ell	gd	Math.13.14.Proficiency	Math.13.14.Level	math_13_14	Math.13.14.New.Cut.Score	Math.12.13.Proficiency	Math.12.13.Level	math_12_13	Math.12.13.New.Cut.Score	Inclusion.Math.13.14	Inclusion.Math.12.13	Inclusion.Years.Math	honors_math_13_14	distance	weights	subclass
1	1	26	1	1	0	4	0	0	8	0	2	288	0	0	1	287	0	1	0	1	0	0.32	1	1
4	4	46	1	0	0	3	1	0	8	0	2	287	0	0	2	300	1	1	0	1	0	0.3	1	47
8	8	89	1	0	0	8	0	0	8	99	99	99	99	0	2	316	1	1	0	1	0	0.24	1	84
10	10	92	0	1	0	0	2	0	8	0	2	297	1	0	2	293	1	0	0	0	0	0.33	1	93
14	14	104	0	1	0	1	0	0	8	98	98	98	98	1	4	358	1	0	0	0	0	0.15	1	17
15	15	105	1	1	0	1	0	0	8	0	2	319	1	0	2	314	1	1	0	1	0	0.25	1	29
17	17	107	0	1	0	0	1	1	8	1	3	325	1	0	2	317	1	0	0	0	0	0.35	1	57
25	25	124	0	1	0	0	2	0	8	0	2	287	0	0	1	264	0	0	0	0	0	0.42	1	9
27	27	128	0	0	0	2	2	0	8	0	2	313	1	0	2	293	1	0	0	0	0	0.33	1	74
31	31	138	0	1	0	22	0	0	8	1	3	344	1	1	3	346	1	0	0	0	0	0.17	1	41
32	32	139	0	0	0	2	0	0	8	0	1	274	0	0	1	285	0	0	0	0	0	0.33	1	30
33	33	142	0	0	0	2	0	0	8	0	1	279	0	0	1	285	0	0	0	0	0	0.33	1	3
40	40	154	1	0	0	4	0	0	8	0	2	304	1	0	2	293	1	1	0	1	0	0.31	1	48
45	45	163	0	0	0	15	0	0	8	1	4	372	1	1	3	340	1	0	0	0	0	0.19	1	157
50	50	175	0	1	0	7	0	0	8	99	99	99	99	0	1	291	1	0	0	0	0	0.31	1	27
58	58	191	1	0	0	5	0	0	8	0	2	313	1	0	2	308	1	1	0	1	0	0.26	1	72
61	61	194	1	1	0	6	0	0	8	99	99	99	99	0	2	306	1	1	0	1	0	0.27	1	76
63	63	198	1	0	0	1	0	0	8	0	2	306	1	0	2	313	1	1	0	1	0	0.25	1	80
74	74	224	0	0	1	7	0	0	8	0	2	304	1	0	2	300	1	0	0	0	0	0.32	1	6
78	78	230	0	0	0	0	1	1	8	1	3	326	1	0	2	319	1	0	0	0	0	0.34	1	139
83	83	241	1	1	0	18	0	0	8	0	2	295	1	0	2	300	1	1	0	1	0	0.28	1	85
89	89	256	0	1	0	2	0	0	8	1	3	336	1	0	2	313	1	0	0	0	0	0.25	1	124
96	96	276	1	1	0	0	0	0	8	0	1	279	0	0	2	310	1	1	0	1	0	0.26	1	88
97	97	280	0	0	0	0	0	0	8	1	3	339	1	1	3	342	1	0	0	0	0	0.19	1	66
106	106	301	0	1	0	3	3	0	8	1	3	326	1	1	3	329	1	0	0	0	0	0.24	1	132
113	113	324	0	1	1	0	2	0	8	0	2	301	1	0	2	293	1	0	0	0	0	0.37	1	121
114	114	325	0	0	0	2	0	0	8	0	2	311	1	0	2	308	1	0	0	0	0	0.27	1	72
115	115	328	0	0	0	5	4	0	8	0	2	316	1	0	1	268	0	0	0	0	0	0.43	1	26
122	122	355	0	0	0	0	0	0	8	0	2	295	1	0	2	293	1	0	0	0	0	0.31	1	48
123	123	365	0	0	0	22	0	0	8	0	2	311	1	0	2	295	1	0	0	0	0	0.3	1	47
133	133	397	0	1	0	14	0	0	8	0	2	316	1	0	2	300	1	0	0	0	0	0.28	1	137
134	134	398	0	0	0	7	0	0	8	0	2	319	1	0	2	310	1	0	0	0	0	0.26	1	88
136	136	403	0	1	0	5	1	0	8	1	3	334	1	1	3	322	1	0	0	0	0	0.24	1	98
147	147	434	0	0	0	0	0	0	8	0	2	306	1	0	2	302	1	0	0	0	0	0.28	1	85
148	148	437	0	1	0	3	1	0	8	0	2	313	1	0	2	306	1	0	0	0	0	0.28	1	115
154	154	446	0	1	0	8	0	0	8	0	2	316	1	0	2	310	1	0	0	0	0	0.26	1	150
155	155	448	0	1	0	5	2	0	8	99	99	99	99	1	3	340	1	0	0	0	0	0.2	1	179
158	158	452	1	0	0	6	0	0	8	99	99	99	99	0	1	285	0	1	0	1	0	0.33	1	30
160	160	455	0	0	0	0	1	1	8	0	2	309	1	0	2	308	1	0	0	0	0	0.38	1	110
172	172	485	0	0	0	0	0	0	8	0	2	301	1	0	2	308	1	0	0	0	0	0.27	1	112
174	174	488	0	0	1	0	1	1	8	0	2	309	1	1	3	322	1	0	0	0	0	0.38	1	68
177	177	492	0	1	0	2	0	0	8	1	4	361	1	1	4	350	1	0	0	0	0	0.17	1	138
179	179	495	0	1	0	3	2	1	8	0	2	299	1	0	2	305	1	0	0	0	0	0.4	1	131
184	184	513	0	0	0	6	0	0	8	0	2	304	1	0	2	305	1	0	0	0	0	0.27	1	125
187	187	519	0	1	0	1	0	0	8	0	2	292	0	0	1	289	0	0	0	0	0	0.32	1	38
190	190	522	1	1	0	2	2	0	8	0	2	304	1	0	2	305	1	1	0	1	0	0.29	1	31
191	191	523	0	1	0	2	1	1	8	0	2	319	1	1	3	325	1	0	0	0	0	0.32	1	1
193	193	528	0	1	0	3	0	0	8	1	3	339	1	0	2	306	1	0	0	0	0	0.27	1	76
197	197	536	0	1	0	0	0	0	8	0	1	271	0	0	1	275	0	0	0	0	0	0.36	1	7
199	199	539	0	0	0	4	0	0	8	99	99	99	99	0	2	316	1	0	0	0	0	0.24	1	84
202	202	543	0	0	0	2	0	0	8	1	3	322	1	1	3	344	1	0	0	0	0	0.18	1	19
206	206	550	0	0	0	1	0	0	8	1	3	332	1	0	2	302	1	0	0	0	0	0.28	1	16
209	209	561	1	0	0	1	0	0	8	0	2	293	1	0	1	289	0	1	0	1	0	0.32	1	32
214	214	570	0	0	0	3	0	0	8	0	2	307	1	0	2	320	1	0	0	0	0	0.23	1	11
215	215	580	0	1	0	3	0	0	8	1	3	341	1	0	2	314	1	0	0	0	0	0.25	1	29
221	221	591	0	1	0	7	0	0	8	1	3	328	1	1	3	338	1	0	0	0	0	0.19	1	91

222	222	594	1	0	0	0	0	0	8	0	2	297	1	0	1	291	1	1	0	1	0	0.31	1	33
225	225	600	0	1	0	5	0	0	8	0	2	307	1	0	2	308	1	0	0	0	0	0.26	1	56
226	226	601	0	0	0	2	0	0	8	1	3	323	1	0	2	316	1	0	0	0	0	0.24	1	36
229	229	608	0	1	0	2	0	0	8	1	3	325	1	1	3	322	1	0	0	0	0	0.23	1	158
232	232	617	0	1	0	14	0	0	8	0	2	306	1	0	2	316	1	0	0	0	0	0.24	1	141
235	235	626	0	1	0	18	0	0	8	1	3	326	1	0	2	308	1	0	0	0	0	0.26	1	22
236	236	629	0	1	0	2	0	0	8	1	3	326	1	0	2	311	1	0	0	0	0	0.26	1	135
241	241	642	0	0	0	2	0	0	8	0	2	309	1	0	1	291	1	0	0	0	0	0.31	1	33
242	242	644	0	0	0	0	0	0	8	0	2	316	1	1	3	327	1	0	0	0	0	0.22	1	64
243	243	647	0	0	0	4	0	0	8	1	4	349	1	1	3	334	1	0	0	0	0	0.2	1	119
249	249	682	0	1	0	30	0	0	8	1	3	326	1	0	2	314	1	0	0	0	0	0.24	1	159
252	252	697	0	1	0	2	0	0	8	0	2	313	1	0	1	289	0	0	0	0	0	0.32	1	32
256	256	729	0	0	0	4	0	0	8	0	2	301	1	0	1	268	0	0	0	0	0	0.38	1	181
257	257	731	0	1	0	2	2	0	8	1	3	344	1	0	2	320	1	0	0	0	0	0.25	1	80
263	263	808	0	0	0	0	3	0	8	0	2	318	1	1	3	322	1	0	0	0	0	0.26	1	113
264	264	818	1	0	0	7	3	0	8	0	2	306	1	0	2	305	1	1	0	1	0	0.3	1	34
268	268	844	0	0	0	0	0	0	8	1	3	344	1	1	3	340	1	0	0	0	0	0.19	1	13
273	273	935	0	1	0	4	1	1	8	1	3	325	1	0	2	300	1	0	0	0	0	0.4	1	145
274	274	942	0	0	1	0	2	1	7	0	1	272	0	0	1	270	0	0	0	0	0	0.32	1	102
275	275	958	0	1	0	0	1	0	8	0	2	314	1	0	2	295	1	0	0	0	0	0.31	1	123
276	276	961	0	1	1	0	0	0	8	0	2	306	1	0	2	297	1	0	0	0	0	0.33	1	18
277	277	988	0	0	1	2	0	0	8	99	99	99	99	0	2	310	1	0	0	0	0	0.3	1	99
278	278	1069	0	0	0	0	1	1	8	0	2	307	1	0	2	313	1	0	0	0	0	0.36	1	21
279	279	1099	0	0	0	0	2	0	8	1	3	322	1	0	2	300	1	0	0	0	0	0.31	1	129
281	281	1111	0	1	0	4	1	0	8	1	3	326	1	0	2	306	1	0	0	0	0	0.28	1	97
282	282	1114	0	1	0	15	0	0	7	0	2	298	1	99	99	99	99	0	0	0	0	0.69	1	14
292	292	1140	1	1	1	4	0	0	7	0	1	269	0	0	1	256	0	1	0	1	0	0.25	1	36
299	299	1157	0	1	1	0	1	1	7	1	3	324	1	0	1	279	0	0	0	0	0	0.29	1	128
308	308	1184	0	0	0	1	0	0	7	0	2	303	1	0	1	282	0	0	0	0	0	0.16	1	12
314	314	1200	0	0	0	6	0	0	7	0	2	315	1	0	2	286	0	0	0	0	0	0.15	1	94
316	316	1203	1	1	0	12	0	0	7	0	1	287	0	0	1	282	0	1	0	1	0	0.16	1	37
317	317	1204	1	0	1	1	1	1	7	0	1	220	0	0	1	268	0	1	0	1	0	0.32	1	38
319	319	1206	0	1	0	8	0	0	7	0	1	287	0	0	1	262	0	0	0	0	0	0.2	1	20
322	322	1213	0	0	0	5	0	0	7	0	1	275	0	0	2	288	0	0	0	0	0	0.15	1	92
328	328	1223	1	1	0	4	0	0	7	99	99	99	99	0	2	288	0	1	0	1	0	0.15	1	39
337	337	1237	1	1	0	4	2	0	7	0	2	306	1	0	2	306	1	1	0	1	0	0.13	1	40
342	342	1244	0	1	0	1	1	0	7	1	3	329	1	0	2	292	1	0	0	0	0	0.15	1	52
343	343	1245	1	1	0	1	0	0	7	0	2	293	1	0	1	275	0	1	0	1	0	0.17	1	41
348	348	1252	1	0	0	6	0	0	7	0	1	280	0	0	2	288	0	1	0	1	0	0.15	1	42
349	349	1254	1	1	0	31	0	0	7	0	1	261	0	0	1	273	0	1	0	1	0	0.17	1	43
351	351	1256	0	1	0	0	2	0	7	0	2	301	1	0	2	290	1	0	0	0	0	0.16	1	75
352	352	1260	1	1	0	0	2	0	7	0	2	305	1	0	2	284	0	1	0	1	0	0.17	1	44
355	355	1268	0	0	0	0	2	0	7	99	99	99	99	0	2	286	0	0	0	0	0	0.17	1	96
363	363	1284	1	0	0	5	0	0	7	0	2	314	1	0	2	305	1	1	0	1	0	0.12	1	45
367	367	1291	0	0	0	26	0	0	7	0	2	311	1	0	1	282	0	0	0	0	0	0.16	1	37
387	387	1322	0	1	1	9	0	0	7	0	2	303	1	0	2	301	1	0	0	0	0	0.15	1	42
392	392	1331	0	0	0	5	1	0	7	0	1	282	0	0	2	290	1	0	0	0	0	0.15	1	61
393	393	1332	0	1	0	2	0	0	7	0	2	296	1	0	2	288	0	0	0	0	0	0.15	1	39
400	400	1343	0	1	1	0	0	0	7	1	3	327	1	0	2	294	1	0	0	0	0	0.16	1	24
403	403	1351	1	0	0	4	0	0	7	0	2	308	1	0	2	290	1	1	0	1	0	0.15	1	49
411	411	1366	1	0	0	0	0	0	7	0	2	296	1	0	2	296	1	1	0	1	0	0.14	1	50
415	415	1375	0	1	0	9	2	0	7	1	3	332	1	0	2	308	1	0	0	0	0	0.13	1	77
419	419	1382	1	0	0	1	0	0	7	0	2	305	1	0	2	313	1	1	0	1	0	0.11	1	51
423	423	1390	1	1	0	8	0	0	7	99	99	99	99	0	2	288	0	1	0	1	0	0.15	1	52
424	424	1392	1	1	0	26	0	0	7	1	3	322	1	0	2	311	1	1	0	1	0	0.11	1	53
431	431	1407	0	0	0	5	0	0	7	0	2	293	1	0	2	286	0	0	0	0	0	0.15	1	163
435	435	1415	0	1	0	4	0	0	7	0	1	289	1	0	1	277	0	0	0	0	0	0.17	1	54
436	436	1418	0	1	0	0	1	1	7	0	2	306	1	1	3	320	1	0	0	0	0	0.16	1	78
453	453	1444	1	0	0	3	0	0	7	0	2	293	1	0	1	277	0	1	0	1	0	0.17	1	54
459	459	1452	1	0	0	0	0	0	7	0	1	289	1	0	2	284	0	1	0	1	0	0.16	1	55
466	466	1463	1	0	1	2	2	1	7	0	2	308	1	0	2	292	1	1	0	1	0	0.26	1	56
468	468	1468	0	1	0	1	1	0	7	0	2	303	1	0	2	292	1	0	0	0	0	0.15	1	127
471	471	1471	1	0	0	2	0	0	7	0	2	303	1	0	2	303	1	1	0	1	0	0.13	1	58
476	476	1483	0	1	0	1	2	0	7	0	2	317	1	0	2	301	1	0	0	0	0	0.14	1	69
478	478	1487	1	1	0	1	0	0	7	0	1	285	0	0	2	294	1	1	0	1	0	0.14	1	59

479	479	1490	0	0	1	0	2	0	7	0	2	320	1	0	2	308	1	0	0	0	0	0.15	1	65
487	487	1501	0	0	0	0	1	1	7	0	2	314	1	0	2	308	1	0	0	0	0	0.19	1	15
490	490	1504	1	1	0	12	2	1	7	0	2	314	1	0	2	290	1	1	0	1	0	0.23	1	60
491	491	1505	0	0	0	0	0	1	7	1	3	341	1	1	3	329	1	0	0	0	0	0.14	1	175
496	496	1518	1	1	0	2	2	0	7	0	2	305	1	0	2	290	1	1	0	1	0	0.16	1	61
502	502	1528	0	1	0	1	3	0	7	1	3	326	1	0	2	301	1	0	0	0	0	0.15	1	49
509	509	1539	0	1	0	1	0	0	7	0	2	315	1	0	2	294	1	0	0	0	0	0.14	1	59
514	514	1548	0	0	0	0	0	0	7	0	2	311	1	0	2	290	1	0	0	0	0	0.15	1	174
520	520	1559	1	0	0	52	0	0	7	0	1	285	0	0	2	288	0	1	0	1	0	0.15	1	62
523	523	1562	1	0	0	2	0	0	7	0	1	280	0	0	2	296	1	1	0	1	0	0.14	1	63
525	525	1569	1	0	1	3	0	0	7	0	1	291	1	0	1	268	0	1	0	1	0	0.22	1	64
529	529	1576	1	1	0	4	0	0	7	0	2	308	1	0	2	286	0	1	0	1	0	0.15	1	65
532	532	1579	0	0	0	1	2	0	7	1	3	334	1	0	2	308	1	0	0	0	0	0.13	1	149
546	546	1605	0	1	0	28	0	0	7	0	2	308	1	0	1	282	0	0	0	0	0	0.16	1	55
551	551	1612	1	0	0	5	1	0	7	99	99	99	99	0	1	273	0	1	0	1	0	0.19	1	66
553	553	1615	1	0	0	20	0	0	7	0	2	301	1	0	1	282	0	1	0	1	0	0.16	1	67
555	555	1622	0	1	0	0	0	0	7	0	2	308	1	0	2	301	1	0	0	0	0	0.13	1	173
558	558	1630	0	0	1	1	1	0	7	0	2	305	1	0	2	292	1	0	0	0	0	0.18	1	43
559	559	1633	1	1	0	2	0	0	7	0	2	295	1	0	2	294	1	1	0	1	0	0.14	1	69
564	564	1640	1	1	0	1	0	0	7	1	3	323	1	0	2	298	1	1	0	1	0	0.13	1	70
565	565	1644	0	0	1	0	3	0	7	0	2	315	1	0	2	311	1	0	0	0	0	0.15	1	165
571	571	1667	1	0	0	1	0	0	7	0	2	300	1	0	2	296	1	1	0	1	0	0.14	1	71
573	573	1676	0	1	0	1	0	0	7	0	2	320	1	0	2	296	1	0	0	0	0	0.14	1	71
574	574	1681	0	1	0	0	0	0	7	1	3	323	1	0	2	301	1	0	0	0	0	0.13	1	154
583	583	1720	0	1	1	9	0	0	7	0	2	300	1	0	1	273	0	0	0	0	0	0.2	1	118
585	585	1732	1	0	0	2	2	0	7	0	2	300	1	0	1	270	0	1	0	1	0	0.2	1	73
591	591	1765	0	0	0	1	0	0	7	0	2	306	1	0	2	299	1	0	0	0	0	0.13	1	70
593	593	1783	0	0	0	8	0	0	7	0	2	309	1	0	2	313	1	0	0	0	0	0.11	1	51
597	597	1793	0	0	0	0	0	0	7	0	1	287	0	0	2	284	0	0	0	0	0	0.16	1	160
600	600	1820	0	0	0	12	1	0	7	0	1	289	1	0	2	294	1	0	0	0	0	0.15	1	62
603	603	1839	0	1	1	4	1	1	7	0	1	251	0	0	1	262	0	0	0	0	0	0.33	1	117
606	606	1861	1	0	0	10	0	0	8	99	99	99	99	0	1	285	0	1	0	1	0	0.33	1	74
607	607	1862	0	1	0	18	4	0	7	99	99	99	99	1	3	327	1	0	0	0	0	0.11	1	53
609	609	1875	1	1	0	2	1	0	7	0	1	285	0	0	2	286	0	1	0	1	0	0.16	1	75
610	610	1881	0	0	0	2	0	0	7	1	3	330	1	0	2	296	1	0	0	0	0	0.14	1	63
611	611	1882	0	0	0	0	0	0	8	0	2	319	1	0	2	293	1	0	0	0	0	0.31	1	114
612	612	1895	0	0	0	0	0	0	8	1	3	323	1	0	2	316	1	0	0	0	0	0.24	1	109
614	614	1917	1	0	0	0	1	0	7	0	2	293	1	0	2	305	1	1	0	1	0	0.13	1	77
615	615	1930	1	0	1	5	2	0	7	0	2	305	1	0	2	303	1	1	0	1	0	0.16	1	78
621	621	2002	0	0	1	1	2	1	7	1	3	326	1	1	3	322	1	0	0	0	0	0.19	1	23
624	624	2047	0	0	0	5	1	0	7	0	2	303	1	0	2	294	1	0	0	0	0	0.15	1	156
632	632	2168	0	0	0	2	2	0	8	1	3	322	1	1	3	329	1	0	0	0	0	0.23	1	60
657	657	2231	0	0	0	5	1	1	7	0	1	287	0	0	1	259	0	0	0	0	0	0.31	1	111
698	698	2291	1	1	0	2	0	0	6	0	2	305	1	0	1	285	0	1	0	1	0	0.06	1	81
703	703	2297	1	1	0	5	0	0	6	0	2	293	1	0	1	272	0	1	0	1	0	0.08	1	82
714	714	2313	1	0	0	1	0	0	6	0	1	270	0	0	1	269	0	1	0	1	0	0.08	1	83
852	852	2543	1	0	0	0	0	0	6	1	3	320	1	0	1	285	0	1	0	1	0	0.07	1	86
877	877	2581	0	0	1	1	0	0	8	1	3	326	1	0	2	300	1	0	0	0	0	0.32	1	8
933	933	2691	1	1	0	6	0	0	6	99	99	99	99	0	1	281	0	1	0	1	0	0.07	1	87
967	967	2772	1	1	0	0	1	1	6	0	2	306	1	0	1	285	0	1	0	1	0	0.1	1	89
969	969	2777	0	0	0	0	0	0	7	1	3	327	1	0	2	305	1	0	0	0	0	0.12	1	45
974	974	2799	1	1	0	0	2	0	7	0	2	314	1	0	1	273	0	1	0	1	0	0.19	1	91
985	985	2847	0	1	0	1	0	0	7	0	2	318	1	0	2	316	1	0	0	0	0	0.11	1	177
997	997	2895	1	1	0	0	0	0	7	1	3	323	1	0	2	288	0	1	0	1	0	0.15	1	92
1003	1003	2931	0	0	0	0	0	0	6	0	2	314	1	0	1	272	0	0	0	0	0	0.08	1	82
1005	1005	2941	1	1	1	0	2	0	7	0	2	314	1	0	2	306	1	1	0	1	0	0.16	1	94
1008	1008	2958	1	1	1	5	3	0	6	0	1	273	0	0	1	263	0	1	0	1	0	0.11	1	105
1010	1010	2965	0	1	0	0	2	1	8	0	2	319	1	0	2	303	1	0	0	0	0	0.4	1	144
1016	1016	2999	0	0	0	0	2	0	7	1	3	335	1	0	2	310	1	0	0	0	0	0.13	1	58
1018	1018	3003	0	1	0	2	0	0	7	0	2	317	1	0	2	301	1	0	0	0	0	0.13	1	152
1020	1020	3013	1	1	0	3	2	0	7	0	2	300	1	0	2	301	1	1	0	1	0	0.14	1	116
1023	1023	3063	1	1	0	6	0	0	7	0	2	293	1	0	2	288	0	1	0	1	0	0.15	1	127
1027	1027	3100	1	0	0	1	0	0	7	0	2	303	1	0	1	282	0	1	0	1	0	0.16	1	138
1028	1028	3116	0	0	0	26	3	0	6	0	2	310	1	0	2	294	1	0	0	0	0	0.07	1	86
1039	1039	3415	0	1	0	0	0	0	7	1	3	345	1	0	2	298	1	0	0	0	0	0.13	1	10

1043	1043	3465	0	1	0	1	0	0	7	0	2	320	1	0	2	308	1	0	0	0	0	0.12	1	168
1047	1047	3932	0	1	0	3	0	0	7	0	2	311	1	0	2	299	1	0	0	0	0	0.13	1	40
1048	1048	3948	1	0	1	8	2	1	6	0	2	308	1	0	1	283	0	1	0	1	0	0.13	1	149
1049	1049	3954	0	0	1	7	1	0	8	1	3	346	1	0	2	311	1	0	0	0	0	0.3	1	34
1052	1052	4037	0	0	1	1	2	1	7	0	2	320	1	1	3	318	1	0	0	0	0	0.2	1	73
1053	1053	4047	0	0	0	1	0	0	8	1	3	326	1	1	3	322	1	0	0	0	0	0.23	1	142
1057	1057	4108	1	0	0	1	0	0	7	0	2	303	1	0	2	284	0	1	0	1	0	0.16	1	160
1058	1058	4115	0	1	0	30	1	0	7	0	2	306	1	0	2	296	1	0	0	0	0	0.14	1	164
1061	1061	4134	0	1	0	6	0	0	8	99	99	99	99	0	2	311	1	0	0	0	0	0.26	1	122
1064	1064	4153	0	1	1	4	0	0	8	0	2	316	1	0	2	310	1	0	0	0	0	0.29	1	126
1069	1069	4219	0	1	0	1	0	0	7	0	2	303	1	0	2	301	1	0	0	0	0	0.13	1	2
1070	1070	4229	0	0	0	7	1	1	8	0	2	316	1	0	2	319	1	0	0	0	0	0.34	1	106
1071	1071	4265	0	1	1	2	3	0	7	0	2	301	1	0	2	310	1	0	0	0	0	0.15	1	171
1072	1072	4281	0	1	0	1	3	0	8	0	2	302	1	0	2	306	1	0	0	0	0	0.3	1	25
1073	1073	4312	0	1	0	34	1	0	8	98	98	98	98	0	2	306	1	0	0	0	1	0.08	1	83
1074	1074	4330	1	1	0	1	0	0	7	0	2	290	0	0	2	284	0	1	0	1	0	0.16	1	171
1077	1077	4393	0	1	1	0	1	1	7	1	3	329	1	0	1	270	0	0	0	0	0	0.31	1	133
1078	1078	4484	0	1	0	0	3	0	7	0	1	291	1	0	1	259	0	0	0	0	0	0.23	1	148
1080	1080	4838	0	0	0	2	0	0	7	0	2	315	1	0	2	298	1	0	0	0	0	0.13	1	79
1081	1081	4841	1	0	0	6	0	0	7	0	1	280	0	0	2	301	1	1	0	1	0	0.13	1	2
1085	1085	4957	0	1	1	1	0	0	8	1	3	325	1	1	3	327	1	0	0	0	0	0.25	1	140
1088	1088	4995	0	0	0	0	0	0	6	0	2	306	1	0	1	281	0	0	0	0	0	0.07	1	87
1097	1097	5103	0	0	0	0	2	0	7	0	2	300	1	0	2	306	1	0	0	0	0	0.13	1	178
1098	1098	5104	0	0	0	2	1	0	8	0	2	306	1	1	3	332	1	0	0	0	0	0.22	1	153
1105	1105	5735	0	0	0	0	0	0	7	1	3	334	1	1	3	318	1	0	0	0	0	0.11	1	176
1109	1109	5815	1	1	0	41	3	0	7	0	1	291	1	0	1	275	0	1	0	1	0	0.19	1	13
1117	1117	5902	1	1	1	5	2	0	7	1	3	322	1	0	2	301	1	1	0	1	0	0.16	1	24
1119	1119	5911	0	1	0	0	2	0	7	0	2	306	1	0	2	284	0	0	0	0	0	0.17	1	44
1122	1122	5994	0	0	1	2	2	0	8	99	99	99	99	0	2	320	1	0	0	0	0	0.29	1	136
1123	1123	6008	0	0	0	1	2	0	8	1	4	353	1	0	2	314	1	0	0	0	0	0.27	1	100
1127	1127	6054	0	0	1	1	1	0	6	0	2	288	0	0	1	263	0	0	0	0	0	0.11	1	169
1129	1129	6099	0	1	0	0	3	0	7	0	2	317	1	0	2	316	1	0	0	0	0	0.12	1	4
1130	1130	6138	1	1	0	0	2	0	8	99	99	99	99	0	2	305	1	1	0	1	0	0.29	1	35
1133	1133	6189	0	1	0	6	1	0	6	1	4	352	1	1	4	372	1	0	0	0	0	0.02	1	167
1134	1134	6268	0	1	0	0	0	0	7	1	3	345	1	1	3	323	1	0	0	0	1	0.02	1	170
1137	1137	6764	0	0	0	2	1	0	8	0	2	311	1	0	2	313	1	0	0	0	0	0.26	1	103
1143	1143	6860	0	1	0	0	1	0	6	1	4	358	1	1	4	353	1	0	0	0	0	0.03	1	161
1147	1147	6892	0	0	1	0	3	0	6	0	2	312	1	0	2	311	1	0	0	0	0	0.06	1	81
1151	1151	6945	0	1	0	19	0	0	6	1	4	355	1	1	4	346	1	0	0	0	0	0.03	1	146
1153	1153	6955	0	1	0	48	0	0	7	0	2	311	1	0	2	301	1	0	0	0	0	0.12	1	151
1155	1155	7006	0	0	0	1	0	0	7	1	3	322	1	0	2	296	1	0	0	0	0	0.14	1	50
1160	1160	7065	0	0	0	0	0	0	7	1	3	337	1	0	2	316	1	0	0	0	0	0.11	1	162
1163	1163	7195	0	1	0	0	1	0	7	1	3	323	1	0	2	308	1	0	0	0	1	0.03	1	180
1164	1164	7231	0	0	1	0	2	0	6	0	2	286	0	0	2	294	1	0	0	0	0	0.08	1	172
1167	1167	7257	0	0	1	1	2	0	7	0	2	314	1	0	2	305	1	0	0	0	0	0.16	1	67
1168	1168	7547	0	0	0	5	3	0	8	0	2	302	1	0	2	306	1	0	0	0	0	0.3	1	107
1170	1170	7671	0	1	0	6	0	0	8	99	99	99	99	0	2	306	1	0	0	0	0	0.27	1	5
1174	1174	7750	0	1	0	7	0	0	8	0	2	318	1	0	2	310	1	0	0	0	0	0.26	1	46
1175	1175	7760	0	0	0	2	1	0	8	1	3	346	1	1	3	332	1	0	0	0	0	0.22	1	101
1177	1177	7796	0	0	0	2	2	0	8	0	2	301	1	0	2	303	1	0	0	0	0	0.3	1	134
1180	1180	7814	0	0	0	45	0	0	8	1	3	330	1	0	2	313	1	0	0	0	0	0.25	1	108
1181	1181	7851	0	0	1	2	3	0	8	1	3	322	1	0	2	300	1	0	0	0	0	0.36	1	120
1183	1183	7858	0	1	0	6	0	0	7	1	3	335	1	1	3	325	1	0	0	0	1	0.02	1	147
1184	1184	7873	0	1	0	0	4	0	8	1	3	322	1	0	2	313	1	0	0	0	0	0.29	1	95
1188	1188	7908	0	1	0	4	1	0	8	1	3	326	1	0	2	313	1	0	0	0	0	0.26	1	143
1189	1189	7921	0	1	0	0	1	1	8	1	3	336	1	1	3	336	1	0	0	0	0	0.29	1	31
1190	1190	7922	0	1	0	3	0	0	7	0	2	309	1	0	2	284	0	0	0	0	0	0.16	1	155
1192	1192	7935	0	0	0	5	0	0	8	1	3	323	1	0	2	298	1	0	0	0	0	0.29	1	35
1194	1194	7942	0	1	0	0	3	0	7	0	2	318	1	0	2	298	1	0	0	0	0	0.15	1	166
1196	1196	7957	0	1	1	2	1	0	7	0	2	318	1	0	2	311	1	0	0	0	0	0.14	1	116
1200	1200	8162	0	0	0	0	1	0	8	0	2	313	1	0	2	298	1	0	0	0	0	0.3	1	130
1203	1203	8268	1	1	0	7	0	0	8	1	3	334	1	0	2	310	1	1	0	1	0	0.26	1	46
1204	1204	8269	0	1	0	10	0	0	7	0	2	320	1	0	2	311	1	0	0	0	0	0.11	1	105
1205	1205	8325	0	1	1	2	2	1	6	0	2	316	1	0	2	302	1	0	0	0	0	0.1	1	89
1207	1207	8353	0	1	1	6	2	0	8	0	1	279	0	0	2	297	1	0	0	0	0	0.35	1	104

1210	1210	8772	1	0	1	12	2	0	8	0	2	301	1	0	2	300	1	1	0	1	0	0.34	1	57
1211	1211	8774	1	0	1	11	2	0	8	0	1	279	0	0	1	291	1	1	0	1	0	0.37	1	68
1212	1212	8776	0	1	0	4	3	0	7	0	2	311	1	99	99	99	99	0	0	0	0	0.72	1	28
1214	1214	8977	0	0	0	7	1	0	7	1	3	327	1	99	99	99	99	0	0	0	0	0.7	1	90
1220	1220	9172	1	1	0	0	1	0	7	0	2	317	1	0	2	301	1	1	0	1	0	0.14	1	79
1224	1224	9276	1	0	0	1	0	0	7	99	99	99	99	99	99	99	99	1	0	1	0	0.69	1	90
1225	1225	73	1	0	0	8	0	0	8	0	2	314	1	0	1	285	0	0	1	1	0	0.33	1	93
1226	1226	93	1	1	0	1	0	0	8	0	2	311	1	0	2	298	1	0	1	1	0	0.29	1	95
1227	1227	121	1	0	0	0	0	0	7	0	2	293	1	0	1	279	0	1	1	2	0	0.17	1	96
1228	1228	141	1	0	0	1	0	0	8	0	1	265	0	0	2	303	1	1	1	2	0	0.28	1	97
1229	1229	159	1	0	0	3	0	0	8	1	3	330	1	0	2	319	1	0	1	1	0	0.24	1	98
1230	1230	168	1	0	0	2	0	0	8	0	2	295	1	0	2	297	1	0	1	1	0	0.29	1	99
1231	1231	197	1	0	0	5	0	0	8	1	3	322	1	0	2	306	1	0	1	1	0	0.27	1	100
1232	1232	202	1	0	0	0	1	0	8	1	3	332	1	1	3	332	1	0	1	1	0	0.22	1	101
1233	1233	209	1	1	0	5	0	0	8	99	99	99	99	0	1	287	0	0	1	1	0	0.32	1	102
1234	1234	210	1	0	0	5	1	0	8	0	2	306	1	0	2	313	1	0	1	1	0	0.26	1	103
1235	1235	237	1	1	0	0	3	0	8	0	2	288	0	0	1	291	1	0	1	1	0	0.34	1	104
1236	1236	253	1	1	0	3	0	0	8	0	2	297	1	0	1	280	0	1	1	2	0	0.34	1	106
1237	1237	264	1	1	0	1	2	0	8	1	3	322	1	0	2	302	1	0	1	1	0	0.3	1	107
1238	1238	270	1	0	0	1	0	0	8	0	2	301	1	0	2	316	1	1	1	2	0	0.24	1	108
1239	1239	306	1	1	0	24	0	0	8	0	2	304	1	0	2	314	1	0	1	1	0	0.24	1	109
1240	1240	320	1	1	0	11	0	0	8	0	2	287	0	0	1	268	0	1	1	2	0	0.38	1	110
1241	1241	348	1	1	0	3	2	0	8	0	2	297	1	0	2	300	1	0	1	1	0	0.31	1	111
1242	1242	353	1	1	0	31	0	0	8	0	2	293	1	0	2	305	1	0	1	1	0	0.27	1	112
1243	1243	371	1	1	0	2	0	0	8	0	2	292	0	0	2	310	1	1	1	2	0	0.26	1	113
1244	1244	396	1	0	0	0	0	0	8	0	2	288	0	0	2	293	1	1	1	2	0	0.31	1	114
1245	1245	405	1	0	0	0	0	0	8	0	2	318	1	0	2	303	1	0	1	1	0	0.28	1	115
1246	1246	409	1	0	0	0	1	0	8	0	2	287	0	0	1	287	0	1	1	2	0	0.34	1	117
1247	1247	445	1	1	0	4	0	0	8	1	4	353	1	1	3	332	1	0	1	1	0	0.21	1	118
1248	1248	459	1	0	0	1	2	0	8	1	3	346	1	1	3	342	1	0	1	1	0	0.2	1	119
1249	1249	466	1	1	0	2	2	0	8	0	1	268	0	0	1	283	0	1	1	2	0	0.36	1	120
1250	1250	507	1	1	0	0	0	0	8	0	2	288	0	0	1	271	0	0	1	1	0	0.37	1	121
1251	1251	509	1	0	0	14	0	0	8	0	2	319	1	0	2	311	1	0	1	1	0	0.26	1	122
1252	1252	551	1	1	0	1	0	0	8	0	2	290	0	0	1	291	1	1	1	2	0	0.31	1	123
1253	1253	558	1	0	0	1	0	0	8	0	2	316	1	0	2	313	1	0	1	1	0	0.25	1	124
1254	1254	564	1	0	0	1	0	0	8	1	3	328	1	0	2	305	1	0	1	1	0	0.27	1	125
1255	1255	571	1	0	0	0	0	0	8	0	2	306	1	0	2	297	1	1	1	2	0	0.3	1	126
1256	1256	573	1	0	0	2	0	0	8	0	2	287	0	0	2	300	1	1	1	2	0	0.29	1	128
1257	1257	581	1	0	0	3	2	0	8	99	99	99	99	0	2	300	1	0	1	1	0	0.31	1	129
1258	1258	589	1	0	0	0	1	0	8	0	2	306	1	0	2	298	1	0	1	1	0	0.3	1	130
1259	1259	596	1	1	0	3	0	0	8	0	1	180	0	0	1	264	0	1	1	2	0	0.39	1	131
1260	1260	616	1	0	0	0	0	0	8	1	3	326	1	0	2	319	1	0	1	1	0	0.24	1	132
1261	1261	618	1	0	0	0	0	0	8	0	1	281	0	0	1	291	1	1	1	2	0	0.31	1	133
1262	1262	619	1	1	0	5	0	0	8	99	99	99	99	0	2	295	1	1	1	2	0	0.3	1	134
1263	1263	637	1	0	0	9	0	0	8	1	3	330	1	0	2	311	1	0	1	1	0	0.26	1	135
1264	1264	650	1	1	0	9	0	0	8	0	2	301	1	0	2	298	1	0	1	1	0	0.29	1	136
1265	1265	658	1	1	0	0	2	0	8	0	2	307	1	0	2	308	1	0	1	1	0	0.28	1	137
1266	1266	660	1	1	0	0	0	0	8	0	2	299	1	0	1	280	0	1	1	2	0	0.34	1	139
1267	1267	662	1	0	0	4	0	0	8	1	3	323	1	0	2	314	1	0	1	1	0	0.25	1	140
1268	1268	684	1	1	0	0	0	0	8	1	3	322	1	0	2	317	1	1	1	2	0	0.24	1	141
1269	1269	690	1	0	0	0	0	0	8	1	3	336	1	1	3	322	1	0	1	1	0	0.23	1	142
1270	1270	735	1	0	0	4	0	0	8	99	99	99	99	0	2	310	1	1	1	2	0	0.26	1	143
1271	1271	839	1	0	0	2	0	0	8	0	1	271	0	0	1	259	0	1	1	2	0	0.41	1	144
1272	1272	1064	1	1	0	1	1	1	8	0	2	314	1	0	2	303	1	0	1	1	0	0.39	1	145
1273	1273	1131	1	1	0	1	0	0	7	1	3	323	1	0	2	311	1	0	1	1	1	0.03	1	146
1274	1274	1219	1	1	0	8	0	0	7	1	3	327	1	1	3	323	1	0	1	1	1	0.02	1	147
1275	1275	1225	1	1	1	4	2	0	7	0	1	289	1	0	1	268	0	0	1	1	0	0.23	1	148
1276	1276	1272	1	1	1	0	0	1	7	0	1	291	1	0	2	286	0	1	1	2	0	0.26	1	150
1277	1277	1276	1	1	0	2	1	0	7	0	2	298	1	0	2	308	1	0	1	1	0	0.12	1	151
1278	1278	1292	1	0	0	5	0	0	7	0	2	300	1	0	2	301	1	0	1	1	0	0.13	1	152
1279	1279	1302	1	0	0	1	1	1	7	0	2	295	1	0	2	294	1	0	1	1	0	0.22	1	153
1280	1280	1325	1	0	0	0	0	0	7	0	2	305	1	0	2	301	1	1	1	2	0	0.13	1	154
1281	1281	1328	1	1	0	0	0	0	7	0	1	285	0	0	2	284	0	1	1	2	0	0.16	1	155
1282	1282	1458	1	0	0	3	0	0	7	0	1	289	1	0	2	290	1	0	1	1	0	0.15	1	156
1283	1283	1482	1	1	0	6	0	0	7	0	2	295	1	0	1	268	0	0	1	1	0	0.19	1	157

	study.id	Student.Dummy.ID	incmath	gender	ses	attendance	ethnicity	ell	gd	Math.13.14.Proficiency	Math.13.14.Level	math_13_14	Math.13.14.New.Cut.Score	Math.12.13.Proficiency	Math.12.13.Level	math_12_13	Math.12.13.New.Cut.Score	Inclusion.Math.13.14	Inclusion.Math.12.13	Inclusion.Years.Math	honors_math_13_14	distance	weights	subclass
1268	1268	684	1	1	0	0	0	0	8	1	3	322	1	0	2	317	1	1	1	2	0	0.2	1	141
1269	1269	690	1	0	0	0	0	0	8	1	3	336	1	1	3	322	1	0	1	1	0	0.2	1	142
1270	1270	735	1	0	0	4	0	0	8	99	99	99	99	0	2	310	1	1	1	2	0	0.3	1	143
1271	1271	839	1	0	0	2	0	0	8	0	1	271	0	0	1	259	0	1	1	2	0	0.4	1	144
1272	1272	1064	1	1	0	1	1	1	8	0	2	314	1	0	2	303	1	0	1	1	0	0.4	1	145
1273	1273	1131	1	1	0	1	0	0	7	1	3	323	1	0	2	311	1	0	1	1	1	0	1	146
1274	1274	1219	1	1	0	8	0	0	7	1	3	327	1	1	3	323	1	0	1	1	1	0	1	147
1275	1275	1225	1	1	1	4	2	0	7	0	1	289	1	0	1	268	0	0	1	1	0	0.2	1	148
1276	1276	1272	1	1	1	0	0	1	7	0	1	291	1	0	2	286	0	1	1	2	0	0.3	1	150
1277	1277	1276	1	1	0	2	1	0	7	0	2	298	1	0	2	308	1	0	1	1	0	0.1	1	151
1278	1278	1292	1	0	0	5	0	0	7	0	2	300	1	0	2	301	1	0	1	1	0	0.1	1	152
1279	1279	1302	1	0	0	1	1	1	7	0	2	295	1	0	2	294	1	0	1	1	0	0.2	1	153
1280	1280	1325	1	0	0	0	0	0	7	0	2	305	1	0	2	301	1	1	1	2	0	0.1	1	154
1281	1281	1328	1	1	0	0	0	0	7	0	1	285	0	0	2	284	0	1	1	2	0	0.2	1	155
1282	1282	1458	1	0	0	3	0	0	7	0	1	289	1	0	2	290	1	0	1	1	0	0.1	1	156
1283	1283	1482	1	1	0	6	0	0	7	0	2	295	1	0	1	268	0	0	1	1	0	0.2	1	157
1284	1284	1484	1	1	0	3	1	1	7	0	2	311	1	0	2	288	0	0	1	1	0	0.2	1	158
1285	1285	1485	1	1	0	0	2	1	7	0	1	272	0	0	2	286	0	0	1	1	0	0.2	1	159
1286	1286	1515	1	0	0	6	0	0	7	1	3	337	1	0	2	313	1	0	1	1	1	0	1	161
1287	1287	1533	1	0	0	6	0	0	7	1	3	339	1	0	2	316	1	0	1	1	0	0.1	1	162
1288	1288	1534	1	1	0	10	0	0	7	0	1	280	0	0	2	284	0	1	1	2	0	0.2	1	163
1289	1289	1546	1	0	0	19	3	0	7	0	2	306	1	0	2	305	1	0	1	1	0	0.1	1	164
1290	1290	1588	1	0	0	1	0	0	7	0	2	303	1	0	2	286	0	1	1	2	0	0.2	1	165
1291	1291	1617	1	1	0	5	3	0	7	0	1	287	0	0	2	298	1	0	1	1	0	0.2	1	166
1292	1292	1623	1	1	0	2	0	0	7	1	4	358	1	1	3	333	1	0	1	1	1	0	1	167
1293	1293	1629	1	1	0	1	0	0	7	0	2	306	1	0	2	308	1	0	1	1	0	0.1	1	168
1294	1294	1634	1	0	0	0	0	0	7	1	3	332	1	1	3	318	1	1	1	2	0	0.1	1	169
1295	1295	1646	1	1	0	3	0	0	7	1	3	337	1	1	3	323	1	0	1	1	1	0	1	170
1296	1296	1650	1	0	0	17	0	0	7	1	3	343	1	1	4	345	1	0	1	1	0	0.1	1	172
1297	1297	1660	1	1	0	3	0	0	7	0	2	308	1	0	2	301	1	1	1	2	0	0.1	1	173
1298	1298	1669	1	1	0	22	0	0	7	0	2	311	1	0	2	288	0	1	1	2	0	0.1	1	174
1299	1299	1673	1	0	0	0	0	0	7	0	1	289	1	0	2	294	1	1	1	2	0	0.1	1	175
1300	1300	1678	1	0	0	0	0	0	7	0	2	320	1	1	3	318	1	0	1	1	0	0.1	1	176
1301	1301	1685	1	1	0	8	0	0	7	0	2	303	1	0	2	316	1	0	1	1	0	0.1	1	177
1302	1302	1689	1	0	0	0	0	0	7	0	2	305	1	0	2	299	1	1	1	2	0	0.1	1	178
1303	1303	1700	1	0	1	1	1	1	7	0	2	312	1	0	2	313	1	0	1	1	0	0.2	1	179
1304	1304	1818	1	1	0	0	3	0	7	0	2	317	1	0	2	316	1	0	1	1	1	0	1	180
1305	1305	1841	1	0	0	6	2	0	8	0	1	283	0	0	1	275	0	1	1	2	0	0.4	1	181
1306	1306	1877	1	0	0	6	0	0	8	0	2	299	1	0	1	285	0	0	1	1	0	0.3	1	3
1307	1307	2384	1	0	0	5	0	0	7	0	2	308	1	0	2	305	1	0	1	1	0	0.1	1	4
1308	1308	3038	1	1	0	2	1	0	8	1	3	323	1	0	2	310	1	0	1	1	0	0.3	1	5
1309	1309	4061	1	1	1	3	2	1	7	0	2	298	1	0	1	270	0	1	1	2	0	0.3	1	6
1310	1310	4329	1	0	1	2	2	0	8	0	2	301	1	0	2	298	1	0	1	1	0	0.4	1	7
1311	1311	4810	1	1	0	11	4	0	8	0	2	306	1	0	2	300	1	1	1	2	0	0.3	1	8
1312	1312	4831	1	0	0	0	1	1	8	0	2	287	0	0	2	297	1	1	1	2	0	0.4	1	9
1313	1313	4981	1	0	0	1	0	0	7	0	2	309	1	0	2	298	1	0	1	1	0	0.1	1	10
1314	1314	5032	1	0	0	2	0	0	8	0	2	299	1	0	2	320	1	0	1	1	0	0.2	1	11
1315	1315	5110	1	0	0	2	0	0	7	0	1	285	0	0	1	282	0	1	1	2	0	0.2	1	12
1316	1316	5171	1	1	1	0	2	1	8	0	2	292	0	0	1	245	0	1	1	2	0	0.6	1	14
1317	1317	5834	1	1	0	1	1	0	7	0	1	282	0	0	1	273	0	1	1	2	0	0.2	1	15

	study.id	Student.Dummy.ID	incmath	gender	ses	attendance	ethnicity	ell	gd	Math.13.14.Proficiency	Math.13.14.Level	math_13_14	Math.13.14.New.Cut.Score	Math.12.13.Proficiency	Math.12.13.Level	math_12_13	Math.12.13.New.Cut.Score	Inclusion.Math.13.14	Inclusion.Math.12.13	Inclusion.Years.Math	honors_math_13_14	distance	weights	subclass
1318	1318	5903	1	1	1	1	2	0	8	1	3	332	1	1	3	322	1	0	1	1	0	0.3	1	16
1319	1319	6187	1	1	0	1	0	0	7	0	2	301	1	0	2	284	0	0	1	1	0	0.2	1	17
1320	1320	6987	1	1	0	4	0	0	8	99	99	99	99	0	1	283	0	1	1	2	0	0.3	1	18
1321	1321	7230	1	0	1	1	2	0	7	0	1	275	0	0	2	292	1	0	1	1	0	0.2	1	19
1322	1322	7924	1	1	0	5	3	0	7	0	1	265	0	0	1	273	0	1	1	2	0	0.2	1	20
1323	1323	7926	1	1	1	8	0	0	8	0	2	301	1	0	2	287	0	0	1	1	0	0.4	1	21
1324	1324	7961	1	1	0	4	3	0	8	0	2	306	1	0	2	320	1	0	1	1	0	0.3	1	22
1325	1325	8151	1	0	0	1	1	1	7	0	2	314	1	0	2	305	1	1	1	2	0	0.2	1	23
1326	1326	8305	1	1	0	1	2	0	8	0	2	299	1	0	2	302	1	1	1	2	0	0.3	1	25
1327	1327	8773	1	1	1	11	2	0	8	0	1	279	0	0	1	275	0	1	1	2	0	0.4	1	26
1328	1328	90488	1	1	0	2	0	0	8	0	2	287	0	0	1	291	1	1	1	2	0	0.3	1	27
1329	1329	91281	1	0	0	4	2	1	8	0	1	228	0	0	1	219	0	1	1	2	0	0.7	1	28